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DOE-RFFO Environmental Restoration Program

Monthly Report
for May 1994



June 20, 1994

DOCUMENT CLASSIFICATION
REVIEW WAIVER PER
CLASSIFICATION OFFICE

A-SW-001449

TABLE OF CONTENTS

Executive Summary

Significant Activities and Achievements for May 1994	1
IAG Performance Indicators for Monthly Report	3
Problems and Programmatic Issues	5
Near-Term IAG Table Six Milestones	7

1.0 Introduction.....	9
-----------------------	---

2.0 Project Status	11
--------------------------	----

2.1 OU 1 - 881 Hillside Area	11
2.1.1 OU 1 Assessment	11
2.1.2 OU 1 Remediation	13
2.2 OU 2 - 903 Pad, Mound, and East Trenches	15
2.2.1 OU 2 Assessment	15
2.2.2 OU 2 Remediation	19
2.3 OU 3 - Offsite Areas	23
2.4 OU 4 - Solar Evaporation Ponds.....	27
2.4.1 OU 4 Assessment	28
2.4.2 OU 4 Remediation	30
2.5 OU 5 - Woman Creek	35
2.6 OU 6 - Walnut Creek.....	41
2.7 OU 7 - Present Landfill	45
2.8 OU 8 - 700 Area.....	49
2.9 OU 9 - Original Process Waste Lines	53
2.10 OU 10 - Other Outside Closures.....	57
2.11 OU 11 - West Spray Field	61
2.12 OU 12 - 400/800 Area	65
2.13 OU 13 - 100 Area	67
2.14 OU 14 - Radioactive Sites	71
2.15 OU 15 - Inside Building Closures	73
2.16 OU 16 - Low-Priority Sites	75
2.17 Sitewide Activities	77

3.0 Routine Environmental Monitoring	83
--	----

3.1 Surface and Sediments	83
3.2 Soils	83
3.3 Groundwater	83

4.0 Subcontractor Identification	85
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Appendix - Acronyms	89
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EXECUTIVE SUMMARY

SIGNIFICANT ACTIVITIES AND ACHIEVEMENTS FOR MAY 1994

In Operable Unit (OU) 1, approval was received from the regulatory agencies to keep antimony and manganese off of the site contaminants list for the Resource Conservation and Recovery Act (RCRA) Facilities Investigation (RFI)/Remedial Investigation (RI) Report. All regulatory agency comments have been addressed for the preparation and submittal of the revised Final RFI/RI Report.

The conceptual design for the Site 2 Soil Vapor Extraction Test Plan for OU 2 was presented to the regulatory agencies on May 19, 1994.

The regulatory agencies granted permission to discontinue collection of OU 2 surface water at locations SW-61 and SW-132. The collection pumps were turned off May 6, 1994.

The OU 4 Phase I RFI/RI Report, a component of the Interim Measure (IM)/Interim Remedial Action (IRA) Decision Document; the OU 4 Post-Closure Monitoring Plan, a component of the IM/IRA Decision Document; and the OU 4 Phase II RFI/RI Work Plan, a stand-alone Interagency Agreement (IAG) deliverable, were delivered to the regulatory agencies on May 27, 1994, in accordance with the IAG.

In OU 4, the bulk of the sludge removal was completed in B South Pond during May 1994. To date, approximately 337,000 gallons of sludge have been transferred into 27 tanks in Tents Three and Four, as a result of 267 vacuuming runs. Final wash down and cleanup operations continued in B South Pond. About two-thirds of the pond surface has been cleaned.

The OU 7 Technical Memorandum, *Revised Work Plan*, was submitted to the regulatory agencies for review on May 23, 1994. With the submittal of this document, the IAG milestones for the OU 7 Draft Phase I RFI/RI Report and the OU 7 Draft Phase II RFI/RI Work Plan were satisfied.

The regulatory agencies have defined the scope of the Pond Water Management IM/IRA to be much larger than the Individual Hazardous Substance Site (IHSS) boundaries of OUs 5 and 6. The regulatory agencies envision a sitewide management program with the possible exclusion of the Industrial Area (IA), with respect to protection of the watersheds, and would include appropriate corrective measures and accountability across multiple divisions and programs.

The regulatory agencies, U. S. Department of Energy (DOE), and EG&G met to discuss amending the language in the IAG that would facilitate pursuing accelerated actions at Rocky Flats. The proposed revisions to the IAG would allow all parties to agree on how accelerated activities should be implemented.

Additionally, the current status of the accelerated cleanup approach and the prioritization of IHSSs within the IA OUs were discussed. This is the first formal presentation to the regulatory agencies on the recent proposals by DOE on how

environmental work should be reorganized based on the changes in scope and requirements since the IAG was established.

IAG PERFORMANCE INDICATORS FOR MONTHLY REPORT

<u>Number of IAG Table Six Milestones to Date</u>	<u>Current FY94 (10/1/93 - 9/30/94)</u>	<u>Since IAG Inception</u>
Scheduled (including approved extensions)	19	116
Met	6	94
Extensions Granted	8	35
Extensions Denied	6	8
Remaining this FY94 (to 9/30/94)	16	n/a
Added	0	5
Deleted	1	4

<u>Deliverables in Review by Regulators</u>	<u>Project</u>	<u>Date Submitted</u>
	OU 2 Draft Phase II RFI/RI Report	16 Dec 93
	OU 4 Draft Proposed Phase I IM/IRA Decision Document	27 May 94
	OU 4 Draft Proposed Phase I RFI/RI Work Plan	27 May 94

<u>Field Work Currently Under Way</u>	<u>Project</u>	<u>Scheduled Complete</u>
Please note: these dates reflect scheduled field work and completed field work.	OU 2	08 Oct 93
	OU 3	13 Jul 93
	OU 4	Jun 95 ^a
	OU 6	30 Jun 94
	OU 7	30 Apr 93
	OU 8	28 Feb 95
	OU 9	30 Jan 95
	OU 10	15 Aug 94
	OU 12	05 Sep 94
	OU 13	06 10 96
	OU 14	25 Oct 96
	OU 15	24 Jun 94

^a for field work Phases I and II

<u>IM/IRA Status</u>	<u>Gallons Treated</u>
OU 1 881 Hillside Treatment	2,435,155 gallons
OU 2 903 Pad Water Treatment	23,311,860 gallons
OU 4 Water Management Tasks (ITS and Pond Water) (since 01 April 94)	767,300 gallons

<u>IAG Document Deliverables Due Next 6 months</u>	<u>Due Date</u>	<u>Expected Date</u>
OU 1 Draft CMS/FS Report	25 Aug 94	25 Aug 94*
OU 1 CD/RD Work Plan	01 Nov 94	12 Sep 97
OU 1 Draft Proposed Plan	11 Nov 94	22 Nov 94
OU 1 Final CMS/FS Report	22 Nov 94	22 Nov 94
OU 2 Draft Proposed Plan	10 May 94	22 Mar 96*
OU 2 Final CMS/FS Report	10 May 94	13 Dec 95*
OU 2 Final Proposed Plan	09 Aug 94	25 Jun 96*
OU 2 Subsurface IM/IRA Complete Test I	30 May 94	30 May 94
OU 3 Final Phase I RFI/RI Report	21 Oct 94	18 Jul 95
OU 4 Final Phase I Proposed IM/IRA DD	06 Aug 94	06 Aug 94
OU 4 Final Phase II RFI/RI Work Plan	06 Aug 94	12 Jul 94

IAG Document Deliverables Due Next 6 months

	<u>Due Date</u>	<u>Expected Date</u>
OU 5 Final Phase I RFI/RI Report	03 May 94	14 Nov 95*
OU 6 Draft Phase I RFI/RI Report	10 Jun 94	19 Apr 95*
OU 6 Final Phase I RFI/RI Report	18 Nov 94	20 Nov 95
OU 7 Draft Phase I Proposed IM/IRA DD	01 Nov 94	03 May 95
OU 8 Final Phase I RFI/RI Report	12 Jul 94	10 Feb 98
OU 9 Final Phase I RFI/RI Report	06 Sep 94	10 Sep 98
OU 10 Draft Phase I RFI/RI Report	25 Aug 94	11 Feb 15
OU 11 Draft Phase I RFI/RI	20 Sep 94	18 Apr 95
OU 12 Final Phase I RFI/RI Report	15 Sep 94	17 Nov 99
OU 13 Draft Phase I RFI/RI Report	08 Aug 94	24 Mar 99
OU 15 Draft Phase I RFI/RI Report	01 Aug 94	01 Aug 94
SW Industrial Area Draft Responsiveness Summary	02 Aug 94	02 Aug 94
SW Industrial Area Final Responsiveness Summary	23 Aug 94	23 Aug 94
SW Industrial Area Final Decision Document	23 Aug 94	23 Aug 94

Overdue Deliverables

	<u>Due Date</u>	<u>Expected Date</u>
OU 2 Draft Phase II RFI/RI Report ^a	12 Mar 93	16 Dec 93*
OU 2 Final Phase II RFI/RI Report	09 Aug 93	23 May 94*
OU 2 Draft CMS/FS Report	04 Nov 93	17 Oct 96*
OU 3 Draft Phase I RFI/RI Report	14 Feb 94	31 Oct 94*
OU 5 Draft Phase I RFI/RI Report	30 Nov 93	09 Feb 95*
OU 7 Final Phase I RFI/RI Report	16 Mar 94	02 Sep 94*
OU 8 Draft Phase I RFI/RI Report	14 Feb 94	02 Nov 15
OU 9 Draft Phase I RFI/RI Report	11 Apr 94	15 Jun 98
OU 12 Draft Phase I RFI/RI Report	20 Apr 94	11 Mar 99

* Completion date to be rescheduled because of Human Health Risk Assessment issues work stoppage.

^a Partial delivery, because of the Human Health Risk Assessment issues work stoppage.

PROBLEMS AND PROGRAMMATIC ISSUES

Funding has not been formally approved for the removal of old fuel tanks, IHSS 129, in OU 10. There are several technical and regulatory issues affecting the implementation of the tank removal that continue to be reviewed and must be resolved before the project can continue.

There has been no resolution of the issue concerning assessment work being done in IHSSs 213 and 214 in OU 10 because of pondcrete being stored in these active RCRA units. These areas still have not been administratively transferred to OU 4 or included as part of a RCRA Part B permit modification.

Photographic evidence uncovered during the RFI/RI historical data review in OU 11 indicated that the West Spray Field extended farther east than previously thought. After a field walkdown and interviews with West Spray Field operating personnel, it was determined that the area in question should be included in the RFI/RI field sampling that will begin in June 1994. This additional work scope will have to be added to the present subcontract by contract modification.

For DOE to be allowed to store Solar Pond sludges in the new 750 Pad tank farm, a change to RCRA interim status is required from the Colorado Department of Health (CDH). CDH has approved the storage of sludge from the 207A and B Ponds but has only conditionally approved sludges from Pond 207C and clarifier, pending five conditions. Four of the conditions have already been incorporated into the sludge storage project. The fifth condition imposed by the CDH would require resampling and recharacterization of the sludges under the general waste analysis regulations. DOE feels that the requirements of this section have been met as demonstrated by data previously provided to the CDH. Sludges from Pond 207C and the clarifier will not be transferred to storage tanks until the CDH's concurrence with DOE's position is obtained. The 207C Pond sludge must be milled prior to transfer, and that operation will proceed. If the interim status condition is not resolved when sludge transfer operations are ready, a day-for-day slip will occur with costs incurred for idle time.

NEAR-TERM IAG TABLE SIX MILESTONES

<u>OU#</u>	<u>IAG</u> <u>Milestone Description</u>	<u>Date Scheduled</u> <u>to EPA/CDH</u>	<u>Status</u>
2 ^a	Submit Draft Phase II RFI/RI Report	12 Mar 93	Extension denied (delinquent)
2 ^a	Submit Final Phase II RFI/RI Report	9 Aug 93	Extension denied (delinquent)
2 ^a	Submit Draft CMS/FS Report	04 Nov 93	•
1	Submit Final Phase III RFI/RI Report	15 Nov 93	Submitted 05 Nov 93. Revisions in progress
5 ^a	Submit Draft Phase I RFI/RI Report	30 Nov 93	•
3 ^a	Submit Draft Phase I RFI/RI Report	14 Feb 94	•
8	Submit Draft Phase I RFI/RI Report	14 Feb 94	Extension denied (NOV issued)
7 ^a	Submit Final Phase I RFI/RI Report	16 Mar 94	•
SW	Submit Draft Decision Document	23 Mar 94	Submitted 14 Mar 94
9	Submit Draft Phase I RFI/RI Report	11 Apr 94	Extension request denied
12	Submit Draft Phase I RFI/RI Report	20 Apr 94	Extension request submitted
5 ^a	Submit Final Phase I RFI/RI Report	03 May 94	Extension request submitted
2 ^a	Submit Final CMS/FS Report	10 May 94	•
2 ^a	Submit Draft Proposed Plan	10 May 94	•
4	Submit Draft Phase I Proposed IM/IRA Decision Document	27 May 94	On schedule
4	Submit Draft Phase II Work Plan	27 May 94	On schedule
6 ^a	Submit Draft Phase I RFI/RI Report	10 Jun 94	Extended from 04 Aug 93
4	Submit Final Phase II RFI/RI Work Plan	06 Aug 94	On schedule
8	Submit Final Phase I RFI/RI Report	12 Jul 94	Extension request denied
15	Submit Draft Phase I RFI/RI Report	01 Aug 94	On schedule
SW	Submit Industrial Area Draft Responsiveness Summary	02 Aug 94	02 Aug 94
4	Submit Final Phase I Proposed IM/IRA Decision Document	06 Aug 94	On schedule
13	Submit Draft Phase I RFI/RI Report	08 Aug 94	•
2 ^a	Submit Final Proposed Plan	08 Aug 94	•
SW	Submit Industrial Area Final Responsiveness Summary	23 Aug 94	On schedule
SW	Submit Industrial Area Final Decision Document	23 Aug 94	On schedule
10	Submit Draft Phase I RFI/RI Report	25 Aug 94	Extension request submitted
1	Submit Draft CMS/FS Report	25 Aug 94	Extended from 11 Feb 94
9	Submit Final Phase I RFI/RI Report	06 Sep 94	Extension request denied
12	Submit Final Phase I RFI/RI Report	15 Sep 94	Extension request denied
11	Submit Draft Phase I RFI/RI Report	20 Sep 94	•
3 ^a	Submit Final Phase I RFI/RI Report	21 Oct 94	Extended from 13 Dec 93
1	Submit CD/RD Work Plan	01 Nov 94	
7 ^a	Submit Draft Phase I Proposed IM/IRA DD	01 Nov 94	•
6 ^a	Submit Final Phase I RFI/RI Report	18 Nov 94	Extended from 07 Jan 94
1	Submit Draft Proposed Plan	22 Nov 94	Extended from 27 Sep 93
1	Submit Final CMS/FS Report	22 Nov 94	•
2 ^a	Submit Responsiveness Summary	13 Dec 94	
4	IM/IRA Responsiveness Summary	14 Dec 94	14 Dec 94
14	Submit Draft Phase I RFI/RI Report	20 Dec 94	•
15	Final Phase I RFI/RI Report	04 Jan 95	On schedule
13	Final Phase I RFI/RI Report	11 Jan 95	02 Dec 99

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<u>OU#</u>	<u>IAG</u> <u>Milestone Description</u>	<u>Date Scheduled</u> <u>to EPA/CDH</u>	<u>Status</u>
4	All Solar Ponds emptied of Water and Sludge	20 Jan 95	Ahead of schedule
10	Final Phase I RFI/RI Report	30 Jan 95	Extension request submitted
4	Final Phase I IM/IRA DD and Final Responsiveness Summary	24 Feb 95	13 Jan 95
7	Final Phase II RFI/RI Work Plan	15 Feb 95	*
11	Final Phase I RFI/RI Report	22 Feb 95	03 Jan 96
1	Submit Final Proposed Plan	24 Feb 95	Extended from 04 Jan 94
9	Submit Draft Phase II RFI/RI Work Plan	10 Mar 95	10 Sep 98
2	Submit Final Responsiveness Summary	16 Mar 95	17 Nov 97
2	Submit Draft CAD/ROD	16 Mar 95	17 Feb 97
7	Final Phase I Proposed IM/IRA DD	06 Apr 95	03 Jul 95

* Behind original IAG schedule; extension required.

^a OU 2 through OU 7 may require additional extensions because of Human Health Risk Assessment issues work stoppage.

SECTION 1. INTRODUCTION

This monthly status report presents the current status and technical achievements of the Rocky Flats Environmental Restoration (ER) Program for May 1994. This program implements the Interagency Agreement (IAG) among the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the State of Colorado to investigate, assess, and remediate, where necessary, contaminated areas at or adjacent to DOE's Rocky Flats site near Golden, Colorado. This agreement was signed on January 22, 1991. The work is being performed for DOE by EG&G Rocky Flats, Inc.

Technical progress, schedule status, and milestone status for each operable unit (OU) as well as other program activities are presented in Section 2. Section 3 contains the schedules for routine environmental sampling as required by Paragraph 210 of the IAG. Section 4 contains a list that identifies the subcontractors performing work on the program as required by Paragraph 13 of the IAG.

SECTION 2. PROJECT STATUS

2.1 OU 1 - 881 HILLSIDE AREA

The alluvial groundwater at the 881 Hillside Area, located north of Woman Creek in the southeast section of Rocky Flats, was contaminated in the 1960s and 1970s with solvents and radionuclides. The area is approximately two miles from the eastern, outer edge of the plant's buffer zone at Indiana Street. The various Individual Hazardous Substance Sites (IHSSs) that make up OU 1 were being investigated and treated as high-priority sites because of potentially elevated concentrations of organic compounds in the near-surface groundwater and the proximity of the contamination to a drainage system leading to an offsite drinking water supply. The selected Interim Remedial Action (IRA) at OU 1 involved construction of an underground drainage system called a French drain that intercepts and contains near-surface groundwater flowing from the OU 1 area. The near-surface water is treated at the 891 treatment facility, designed for this purpose, and released onsite into the South Interceptor Ditch along Woman Creek. Water collected from this ditch undergoes a secondary analysis prior to release. IRA construction was completed in April 1992. The Remedial Investigation (RI) and Feasibility Study (FS) to determine the final remedial action are continuing in parallel with operation of the IRA.

2.1.1 OU 1 ASSESSMENT

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase III RFI/RI Work Plan	06 Feb 90
	Submit Final Phase III RFI/RI Work Plan	31 Oct 90
	Submit Draft Phase III RFI/RI Report	28 Oct 92
	Submit Final Phase III RFI/RI Report	05 Nov 93

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft CMS/FS Report	25 Aug 94	25 Aug 94	25 Aug 95
Submit Final CMS/FS Report	22 Nov 94	22 Nov 94	22 Nov 94
Submit Draft PP	27 Sep 93	22 Nov 94	26 Jun 95
Submit Final PP	04 Jan 94	24 Feb 95	21 Sep 95
Submit Draft Responsiveness Summary	23 Jun 95	23 Jun 95	28 Feb 96
Submit Final Responsiveness Summary	22 Sep 95	22 Sep 95	05 Jun 96
Submit Draft CAD/ROD	22 Sep 95	22 Sep 95	05 Jun 96
Submit Final CAD/ROD	22 Dec 95	22 Dec 95	16 Aug 96
Submit Draft Title II Design	05 Jul 95		10 Mar 97

May Work Activity Status

Remedial Investigation - Approval was received from the regulatory agencies to keep antimony and manganese off of the site contaminants list for the RCRA Facility Investigation (RFI)/RI Report. All agency comments have been addressed in preparation of the submittal of the revised Final RFI/RI Report.

Feasibility Study (FS)/Corrective Measures Study (CMS) - DOE received the OU 1 schedule for the CMS/FS and Proposed Plan on May 6, 1994. This report has gone through a review and was updated.

The Final Technical Memorandum (TM) #10, *Preliminary Remedial Goals*, and the Draft TM #11, *Alternatives Array*, were delivered to the EPA and the Colorado Department of Health (CDH) on May 3, 1994.

A meeting was held with EPA and CDH to discuss TM #11, *Alternative Array*. The regulatory agencies are requesting that more alternatives be added to the screen. The difficulty in meeting the Draft CMS/FS submission and the overall schedule of the CMS/FS to the EPA and CDH were discussed.

A meeting with EPA, CDH, DOE, and EG&G is being scheduled on groundwater modeling to decide what the "compliance boundary" should be. Establishing this boundary will have an influence on the entire detailed analysis process.

Technical Memoranda

Project

OU 1 - 881 Hillside

TM #10
TM Title
TM Status

Preliminary Remediation Goals
Submitted Final TM to EPA/CDH: 03 May 94
When preparation was concluded or is estimated to be concluded: 03 May 94
Projected date of submittal to EPA/CDH: 03 May 94
Actual date of submittal: 03 May 94
Date comments were received: N/A

TM #11
TM Title
TM Status

Alternative Array
Submitted Draft TM to EPA/CDH: 03 May 94
When preparation is concluded or is estimated to be concluded: N/A

Projected date of submittal to EPA/CDH: N/A

Actual date of submittal: N/A

Date comments were received: N/A

Note: Regulatory agency comments will be included directly into the Draft CMS/FS. A Final TM #11 will not be produced.

Planned Work for June

- Complete work on the Final RFI/RI Report.
- Continue work on the Draft CMS/FS.

Problems

None

Open Items

None

2.1.2 OU 1 REMEDIATION**Scope of Work Changes
This Period**

None

**Technical Approach
Changes This Period**

Accelerated Cleanup Team has begun the process to clean up the OU 1 radiation hot spots. This accelerated cleanup will result in a substantial reduction of human health baseline risk.

**IAG Milestone
Accomplishments**

Submit Draft Proposed IM/IRA Decision Document	18 Sep 89
Submit Proposed IM/IRA Decision Document	06 Oct 89
Submit Final IM/IRA Decision Document	05 Jan 90
Begin Phase I-A IM/IRA Construction	15 Jan 90
Restart Phase I-A IM/IRA Construction (after shutdown)	20 Jun 90
Begin Phase I-B IM/IRA Construction (ahead of schedule)	28 Sep 90
Submit IM/IRA Implementation Document	22 Feb 91
Begin Phase II-A IM/IRA Construction	01 Apr 91
Begin IM/IRA Testing	05 Aug 91
Begin Phase II-B IM/IRA Construction	03 Sep 91
Complete IM/IRA Construction (891 treatment facility)	02 Mar 92
Complete IM/IRA Construction (French drain)	13 Apr 92

**Future IAG Milestones
Through FY95**

None

May Work Activity Status

**Interim Measure (IM)/Interim Remedial Action (IRA)
Treatment Facility** - DOE received the Treatment System
Quarterly Report #3 for January through March 1994 and
the Data Report for October through December 1993.

Volatile organic and metals results were received on
effluent Tank T-206. Chloroform was detected at 14
parts per billion. The contaminant is the result of treating
the OU 2 Soil Vapor Extraction water. Processing this
water with chloroform will require making adjustments to
the system operating parameters. The accompanying
trip blank and the laboratory blank showed no detections
of chloroform. Currently, there are no Applicable or
Relevant and Appropriate Requirements for chloroform
at Building 891. A sample was sent to the laboratories to
confirm the chloroform result.

The effluent Tank T-206 is ready for discharge. The
effluent Tank T-205 is currently being filled. Analysis for
effluent Tank T-207 should be completed in June 1994.
Initial results for metals and volatiles indicate that all
parameters are below Applicable or Relevant and
Appropriate Requirements.

The proposal to discontinue treating Building 881 footing
drain water was delivered to the regulatory agencies on
May 20, 1994.

Treated groundwater this month: 315,417 gallons
Total treated to date: 2,435,155 gallons

Planned Work for June

Normal Operations

Problems

None

Open Items

None

2.2 OU 2 - 903 PAD, MOUND, AND EAST TRENCHES

The contamination at the 903 Pad and Mound areas is largely attributed to the storage in the 1950s and 1960s of waste drums that corroded over time, allowing hazardous and radioactive material to leak into the surrounding soil. Additional contamination may have resulted from wind dispersion during drum removal and soil movement activities. The East Trenches Area was used for disposal of plutonium- and uranium-contaminated waste and sanitary sewage sludge from 1954 to 1968. Two areas adjacent to the trenches were used for spray irrigation of sewage treatment plant effluent; these areas may have contaminants that were not removed by the treatment system.

Originally, the IM/IRA collected seep and surface water contamination sources, then treated and discharged the effluent to the surface water drainage. Operation of the field-scale treatability unit for the South Walnut Creek drainage began in May 1991. The effectiveness of the treatment process was evaluated at three locations: the influent to the treatment facility, several points within the facility, and the discharge point. Approval was granted to discontinue collection of two of the three sources due to a small amount of contamination. Collection of the last source may be discontinued after regulator approval.

A second IM/IRA was established in late 1991. This Subsurface IM/IRA Plan/Environmental Assessment encompasses the 903 Pad, the Mound Area, and the East Trenches Area of OU 2. This IM/IRA describes the process to evaluate a remediation technology for removal of residual free-phase volatile organic compound contamination at OU 2. The volatile organic compound removal actions involve *in situ* vacuum-enhanced vapor extraction technology. The interim remedial action will provide information to aid in the selection and design of final remedial actions that address subsurface, residual free-phase volatile organic compound contamination at OU 2.

2.2.1 OU 2 ASSESSMENT

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period**

IAG Milestone Accomplishments	Submit Draft Phase II RFI/RI Work Plan (Alluvial)	21 Dec 89
	Submit Final Phase II RFI/RI Work Plan (Alluvial)	12 Apr 90
	Submit Draft Phase II RFI/RI Work Plan (Bedrock)	05 Feb 91
	Submit Final Phase II RFI/RI Work Plan (Bedrock)	02 Jul 91
	Submit Field Report for Detailed Soil Vapor Survey	15 Dec 93
	Submit Preliminary Draft Phase II RFI/RI Report	16 Dec 93

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase II RFI/RI Report	12 Mar 93	Denied	16 Dec 93*
Submit Final Phase II RFI/RI Report	09 Aug 93	Denied	23 May 94*
Submit Draft CMS/FS Report	04 Nov 93		17 Oct 96*
Submit Final CMS/FS Report	10 May 94		13 Dec 95*
Submit Draft PP	10 May 94		22 Mar 96*
Submit Final PP	09 Aug 94		25 Jun 96*
Submit Final Pilot Test Plan Site II	30 Aug 94		30 Aug 94
Submit Final Pilot Test Report Site I	27 Oct 94		27 Oct 94
Submit Draft Final Pilot Test Report	28 Oct 94		28 Oct 94
Submit Responsiveness Summary	13 Dec 94		30 Jun 98*
Submit Final Pilot Test Report	20 Dec 94		20 Dec 94
Submit Draft CAD/ROD	16 Mar 95		02 Dec 98*
Submit Final Responsive Summary	16 Mar 95		02 Dec 98*
Submit Final CAD/ROD	15 Jun 95		10 Aug 99*
Submit CAD/ROD Work Plan	15 Jun 95		10 Aug 99*
Submit Final Pilot Test Report Site II	01 Sep 95		01 Site 95
Submit Final Pilot Test Report Site III	23 Apr 96		23 Apr 96

*To be determined due to Human Health Risk Assessment issues work stoppage.

May Work Activity Status

Remedial Assessment - A revised schedule and assumptions are being assembled for the continuation of the risk assessment and the RI report and their relationship to the FS.

A meeting was held with EPA, CDH, and DOE to discuss the revised schedules for the RI Reports and FS for OUs 2, 3, and 6. Schedule approvals were postponed until several issues can be assessed and resolved.

Treatability Study/Feasibility Study - Preparation of TM #1 (Preliminary Remediation Goals, Remedial Action Objectives, and General Remediation Actions) has been delayed until the Contaminants of Concern Technical Memorandum of the Baseline Risk Assessment is completed. Submittal of TM #1 will be delayed from June 3, 1994, to October 1994.

Work is continuing on the Applicable or Relevant and Appropriate Requirements Strategic Document and the Preliminary Remediation Goals tables; however, the OU 2 FS for fiscal year 1994 (FY94), Draft TM #2, *Initial Screening of Alternatives*, will be delayed until FY95. Schedule and cost impacts are being evaluated.

Technical Memoranda

Project

OU 2 - 903 Pad, Mound, and East Trenches

TM #5

TM Title

TM Status

Exposure Scenarios

When preparation is concluded or is estimated to be concluded: 15 Jan 93

Projected date of submittal to EPA/CDH: 15 Jan 93

Actual date of submittal: 15 Jan 93

Date comments were received: 11 Feb 93 EPA,
12 Mar 93 CDH

TM #6

TM Title

TM Status

Modeling

When preparation is concluded or is estimated to be concluded: 15 Jan 93

Projected date of submittal to EPA/CDH: 15 Jan 93

Actual date of submittal: 15 Jan 93

Date comments were received: 01 Apr 93 EPA

TM #7

TM Title

TM Status

Surficial Soils

When preparation is concluded or is estimated to be concluded: 07 Jan 93

Projected date of submittal to EPA/CDH: 07 Jan 93

Actual date of submittal: 12 Jan 93

Date comments were received: 21 Jan 93

TM Approved

TM #8

TM Title

TM Status

Bedrock

When preparation is concluded or is estimated to be concluded: 15 Mar 93

Projected date of submittal to EPA/CDH: 01 Mar 93

Actual date of submittal: 15 Mar 93

Date comments were received: 14 Apr 93 EPA

TM Approved

TM #8 Addendum

TM Title

TM Status

Contingency Plan for revised Phase II RFI/RI Work Plan
(Bedrock)

When preparation is concluded or is estimated to be concluded: To be determined

Projected date of submittal to EPA/CDH: To be determined

Actual date of submittal: To be determined

Date comments are received: To be determined

TM #9
TM Title Chemicals of Concern
TM Status When preparation is concluded or is estimated to be concluded: 24 Aug 93
Projected date of submittal to EPA/CDH: Unknown due to work stoppage
Actual date of submittal: 08 Dec 93
Date comments are received: 14 Jan 94

TM #10
TM Title Toxicity Assessment
TM Status When preparation is concluded or is estimated to be concluded: 24 Aug 93
Projected date of submittal to EPA/CDH: Unknown due to work stoppage
Actual date of submittal: To be determined
Date comments are received: To be determined

Planned Work for June • Continue work on the Risk Assessment and FS.

Problems None

Open Items None

2.2.2 OU 2 REMEDIATION

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Proposed IM/IRA Decision Document	19 Jun 90
	Submit Proposed Plan IM/IRA Decision Document	18 Sep 90
	Submit Draft Responsiveness Summary	13 Dec 90
	Submit Final Responsiveness Summary and Final IM/IRA Decision Document	11 Jan 91
	Field Treatability Test System Installation Complete	10 May 91
	Begin Field Treatability Testing (Carbon System)	03 May 91
	Submit Draft Treatability Test Report (Phase I GAC)	01 Apr 92
	Complete IM/IRA Construction (radionuclides removal system)	24 Apr 92

Project Status

Begin Field Treatability Testing (radionuclides removal system)	27 Apr 92
Submit Final Treatability Test Report (Phase I GAC)	02 Jun 92
Submit Subsurface Site I Draft Test Plan	29 Oct 92
Submit Subsurface Site I Final Test Plan	12 Jan 93
Submit Subsurface Site 2 Draft Test Plan	06 July 94
Submit Draft Surface Water Field Treatability Report	13 Jul 93
Submit Final Phase II Treatability Study Report	26 Jan 94
Begin Subsurface IM/IRA Test I	14 Feb 94

**Future IAG Milestones
Through FY95**

None

**May Work Activity
Status**

Subsurface Interim Measure/Interim Remedial Action Operations Report - Removal rates at Test Site 1 have been as high as 1 pound of total volatile organic compounds an hour; however, because the current abundance of ground moisture gas permeability in the soils has dropped, removal rates of approximately 3 to 4 pounds of total volatile organic compounds removed a day have been observed

The conceptual design for the Site 2 Soil Vapor Extraction Test Plan was presented to the EPA and CDH on May 19, 1994. The Site 2 schedule is nearly complete; minor baseline revisions are still ongoing.

The Draft Off-Gas Treatment Technology Evaluation TM, which evaluates off-gas treatment alternatives for treatment of extracted soil gas from IHSS 110, was delivered to the regulatory agencies on May 20, 1994. Currently, the Project Management Plan for Site 2 is being developed.

Comments on the Data Management Plan and the Implementation and Operation Plan have been resolved. The final controlled document revision was issued in May 1994.

TM #4, *Subsurface Characterization Report*, is being formulated. This technical memorandum is a data summary of all available data (groundwater, surface water, and soil data). This report will be used to prepare a design basis for the off-gas treatment technology and the six-phase heating array design for Site 2. The three-

dimensional modeling effort will be supported by the information obtained through this memorandum.

The Soil Vapor Extraction unit ran for 430 continuous hours. About 200 pounds of volatile organic compounds were removed by the unit.

Field Treatment Unit Surface Water Treatment Facility - The EPA and CDH granted permission to discontinue collection of surface water at locations SW-61 and SW-132. The collection pumps were turned off on May 6, 1994. Because the Field Treatability Unit will only be collecting approximately 10 percent as much water, the facility will be available to treat water from other sources. Other uses for the Field Treatability Unit are being investigated at this time. Modifications to the Sampling and Analysis Plan will be made to reflect the new operational requirements. The new Sampling and Analysis Plan will result in a significantly lower cost by utilizing onsite facilities (881 Laboratories and OU 1) and reducing the overall number of samples.

Construction continues for the installation of permanent power at the Field Treatability Unit. All of the power poles have been installed, and approximately 75 percent of the transmission wire is in place. Estimated completion is scheduled for June 8, 1994.

DOE will ship spent carbon offsite for regeneration. By doing this, all the carbon that is spent will be rejuvenated for reuse and not stored as a Resource Conservation Recovery Act (RCRA) regulated waste. Transfer of spent carbon into U. S. Department of Transportation-approved containers and new carbon into the service vessels occurred on April 30, 1994.

Treated surface water this month: 581,740 gallons
Total treated to date: 23,311,860 gallons

Planned Work for June

- Continue Field Treatability Unit operations treating SW59 and Soil Vapor Extraction water.
- Continue Soil Vapor Extraction Site 1 sustained operations.

Problems

None

Open Items

Because the agencies have approved discontinued treatment of SW-61 and SW-132 surface water, treatment of SW-59 water is no longer efficient at the Field Treatability Unit. Alternative treatment technologies are being investigated.

2.3 OU 3 OFFSITE AREAS

OU 3 can be divided into two categories based on two main activities. The IAG directs activities according to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). This involves assessment of contamination in offsite areas also referred to as Contamination of the Land Surface (IHSS 199), Great Western Reservoir (IHSS 200), Standley Lake (IHSS 201), and Mower Reservoir (IHSS 202). The second category responds to a 1985 out-of-court lawsuit settlement, McKay vs. U.S., which directed that the surface soil contamination be remediated. Remedial activities in compliance with the Settlement Agreement (deep disc plowing) began in 1985. The disturbance resulting from remediation is being revegetated with mediocre success. The overall schedule for this activity is determined by the year-to-year success of the revegetation effort and requirements of the landowners.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Past Remedy Report	26 Oct 90
	Submit Draft Historical Information/ Preliminary Health Risk Assessment Report	09 Nov 90
	Submit Final Past Remedy Report	02 Apr 91
	Submit Final Historical Information/ Preliminary Health Risk Assessment Report	16 Apr 91
	Submit Draft Phase I RFI/RI Work Plan	10 Jul 91
	Submit Final Phase I RFI/RI Work Plan	06 Dec 91

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	16 Jul 93	14 Feb 94	14 Feb 94*
Submit Final Phase I RFI/RI Report	21 Oct 94		18 Jul 95*

* To be determined due to Human Health Risk Assessment issue work stoppage.

May Work Activity Status A DOE audit of OU 3 Environmental Evaluation records was conducted that reviewed the OU 3 Environmental Evaluation Work Plan and Sampling Plan and spot-checked field documents and data record books for consistency. The audit team indicated that the OU 3 records reviewed and spot-checked were in good order

with minor discrepancies observed in field records associated with a June 1992 vegetation survey.

A site walk was conducted with the construction contractor for the air monitors. The electrical specifications have changed from the Statement of Work, and a change order is being prepared. The subcontractor has obtained all of the necessary permits and is trying to obtain information from the Public Service Company regarding the potential locations of the line-extension power poles. A limited native plant species survey will be conducted at each monitoring station site area following installation operations. A photographic documentation of construction activities will be scheduled.

A meeting was held with the subcontractor in charge of weed control on the Jefferson County remedy acreage and members of the Jefferson County weed control staff. A site walk indicated that the remedy acreage contains many noxious weeds. The purpose of the meeting was to determine the types of weeds to be controlled, the herbicide to be used, and the timing of the application. Application should begin in approximately one month. This will be coordinated with EG&G, who will perform a Migratory Bird Survey and an Endangered Plant and Animal Survey prior to the herbicide application.

A meeting with the regulatory agencies took place on May 10, 1994, and was designed to inform them of the total schedule impact of the stop work order. This meeting indicated that there are still some unresolved issues from the stop work order. It was decided that work needed to continue to standardize the approach taken for the identification of the source areas and how to apply the risk assessment methodology. OU 3 is impacted only minimally and will proceed forward to the greatest extent possible.

Technical Memoranda

Project

TM #1
TM Title
TM Status

OU 3 - Offsite Areas

Field Changes to RFI/RI Work Plan
When preparation is concluded or is estimated to be concluded: 10 May 93
Projected date of submittal to EPA/CDH: 10 May 93

Project Status

Actual date of submittal: 23 Apr 93
Date comments were received: N/A

TM #2
TM Title
TM Status

Exposure Scenarios for the HHRA
When preparation is concluded or is estimated to be concluded: 12 May 93
Projected date of submittal to EPA/CDH: 12 May 93
Actual date of submittal: 03 May 93
Date comments were received: 15 Jul 93

TM #3
TM Title
TM Status

Modeling
When preparation is concluded or is estimated to be concluded: Sep 94
Projected date of submittal to EPA/CDH: Sep 94
Actual date of submittal: N/A
Date comments were received: N/A

TM #4
TM Title
TM Status

Contaminants of Concern
When preparation is concluded or is estimated to be concluded: Aug 94
Projected date of submittal to EPA/CDH: Aug 94
Actual date of submittal: N/A
Date comments were received: N/A

TM #5
TM Title
TM Status

Toxicity
When preparation is concluded or is estimated to be concluded: Aug 94
Projected date of submittal to EPA/CDH: Aug 94
Actual date of submittal: N/A
Date comments were received: N/A

Planned Work for June

- Prepare revised project schedule.
- Select Human Health Risk Assessment contaminants of concern.

Problems

None

Open Items

The post-stop work order schedule for OU 3 has yet to be fully accepted by the regulatory agencies.

2.4 OU 4 - SOLAR EVAPORATION PONDS

OU 4 is comprised of five solar evaporation ponds: 207A, 207B series (north, center, south), and 207C, which were constructed for treatment and storage of process water from industrial operations. The process water contained treated acidic wastes, industrial liquid wastes (e.g., metal plating solutions), and low-level radioactive wastes.

As technology improved through the early 1960s and 1970s, the ponds were relined with various upgraded materials. However, leakage from the ponds into the soil and groundwater was suspected. Interceptor trenches were installed in 1971 to collect and recycle contaminated groundwater to the ponds and to minimize natural seepage and pond leakage from entering North Walnut Creek. In 1981, these trenches were upgraded by the current, larger interceptor trench system, which returned approximately 4 million gallons of groundwater back into the solar evaporation ponds each year.

Process water has not been pumped into the ponds since 1986, and with the diversion of the Interceptor Trench System water to storage tanks in April 1993, groundwater is no longer returned to the ponds. This placement of water into the ponds had been occurring without meeting Land Disposal Restrictions and Minimum Technology Requirements of RCRA. A new, dedicated Building 910 evaporation-treatment facility became operational in July 1993. This building supplements the plant's waste treatment facility in Building 374 to process the water stored in the modular tanks. Because upgrades were installed in Building 374 and as other plant waste streams decreased in volume, Interceptor Trench System water is now preferentially treated in Building 374 rather than Building 910.

The Solar Evaporation Ponds Subproject is comprised of four technical areas: (1) remix of non-certified pondcrete and saltcrete, and pond sludge processing by means of the Agreement in Principle between DOE, CDH, and the Federal Facility Compliance Agreement; (2) water management/treatment by means of the IM/IRA Decision Document signed by EPA, CDH, and DOE; (3) the OU 4 assessment and remedial action, per the IAG which identified the ponds as one of the 16 OUs to be remediated at Rocky Flats and superseded the 1988 Ponds Closure Plan submitted by DOE to the regulators; and (4) pad operations, storage, and disposal activities that are necessary to meet the plant's RCRA interim status and permit requirements for storage of pond wastes. The water management and pond sludge clean-out are necessary precursors to OU 4 assessment and remediation, and pad operations are necessary support activities at least until the pond sludge waste is processed and disposed. Revisions to scope in these areas are being implemented in accordance with the dispute resolution for OU 4.

Work in these four areas was planned to close the ponds and remediate OU 4. The work was scoped to (1) remove water from the ponds, (2) provide a treatment facility to replace the ponds as evaporation-treatment and storage units for pond-related contaminated groundwater, (3) remove and dispose of pond sludge in compliance with all regulations such as the Land Disposal Restrictions of RCRA, (4) assess the nature and extent of contamination at the ponds, (5) complete a RCRA closure of the impoundments, and (6) remediate the ponds, as needed.

2.4.1**OU 4 ASSESSMENT****Scope of Work Changes
This Period**

Project Work Plans have been revised to incorporate the results of the OU 4 dispute resolution, as outlined in the future milestone section. Budget changes to implement the revised scope were submitted to DOE Headquarters. While awaiting DOE Headquarter's approval, DOE Rocky Flats Field Office (RFFO) is proceeding with the scope funded under these changes.

**Technical Approach
Changes This Period**

None

**IAG Milestone
Accomplishments**

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 90
Submit Draft Phase II RFI/RI Work Plan	27 May 94

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status*</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	21 May 93	Deleted	Deleted
Submit Final Phase I RFI/RI Report	18 Oct 93	Deleted	Deleted
Submit Final Phase II RFI/RI Work Plan	19 Sep 94	06 Aug 94	12 Jul 94

* Established revised dates in dispute resolution.

**May Work Activity
Status**

The RFI/RI Work Plan for Phase II groundwater investigation was completed and delivered to the regulatory agencies on May 27, 1994.

The RCRA/CERCLA investigation field work will continue through approval of a Record of Decision and subsequent construction of the final corrective remedial action in FY00 (if required). Further assessment/characterization under the remaining two ponds will not be known until samples are available.

Technical Memoranda**Project****OU 4 - Solar Evaporation Ponds**

TM #1

TM Title

TM Status

Vadose Zone Investigation

Draft submitted to EPA/CDH: 16 Nov 92

Comments received: 30 Nov 92

Project Status

Conditional Approval: 30 Nov 92
Projected submittal of final to EPA/CDH: 15 Dec 92
Actual submittal date of final: 15 Dec 92
Submittal of TM 1 Vadose Zone Schedule: 19 May 93
EPA/CDH final approval of TM #1: 17 Jun 93

TM #2
TM Title
TM Status

Modification to Field Activities
Draft submitted to EPA/CDH: 18 Mar 93
Comments received: 07 May 93
Projected submittal of final to EPA/CDH: 07 Jun 93
Actual submittal date of final: 09 Jun 93
EPA/CDH final approval of TM #2: 30 Jun 93

TM #3
TM Title
TM Status

Environmental Evaluation
Draft submitted to EPA/CDH: 19 Mar 93
Comments received: 21 Apr 93 EPA, 02 Jun 93 CDH
Projected submittal of Final to EPA/CDH: 30 Apr 93
Actual submittal date of Final: 02 Jul 93
EPA/CDH final approval of TM #3: 30 Jul 93

TM #4
TM Title
TM Status

Human Health Risk Assessment Exposure Scenarios
Draft submitted to EPA/CDH: 19 Mar 93
Comments received: 21 Apr 93 EPA, 23 Apr 93 CDH
Projected submittal of final to EPA/CDH: 11 Jun 93
Actual submittal date of final: 11 Jun 93
EPA/CDH final approval of TM #4: 25 Jun 93

TM #5
TM Title
TM Status

Exposure Models
Projected submittal of draft to EPA/CDH: 01 Aug 93
Actual submittal of draft : 24 Jun 93
Projected submittal of final to EPA/CDH: 15 Oct 93
Received stop work order: 24 Aug 93

TM #6
TM Title
TM Status

Contaminants of Concern
Projected submittal of draft to EPA/CDH: 09 Nov 93
Projected submittal of final to EPA/CDH: 22 Dec 93
Received stop work order: 24 Aug 93

TM #7
TM Title
TM Status

Toxicity Assessment
Projected submittal of draft to EPA/CDH: 04 Nov 93
Projected submittal of final to EPA/CDH: 22 Dec 93
Received stop work order: 24 Aug 93

Planned Work for June The regulatory agencies will comment on the Draft Phase II RFI/RI Work Plan. Efforts to streamline the Phase II implementation schedule will begin.

Problems None

Open Items None

2.4.2 OU 4 REMEDIATION

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments The first IAG remediation milestone for this OU is the Draft Phase I Proposed IM/IRA Decision Document that was delivered to the regulatory agencies on May 27, 1994, in accordance with the IAG.

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Final Phase I Proposed IM/IRA Decision Document	12 Sep 94	06 Aug 94	06 Aug 94
All Solar Ponds Emptied of Water and Sludge	new	20 Jan 95	07 Sep 94
IM/IRA Responsiveness Summary	25 Jan 95	14 Dec 94	14 Dec 94
Final Phase I IM/IRA DD and Final Responsiveness Summary	24 Jan 95	25 Feb 95	25 Feb 95
IM Title II Design	24 Jun 96	10 Feb 95	10 Feb 95
Begin Phase I IM/IRA Construction	28 Jan 97	27 Sep 95	27 Sep 95

May Work Activity Status

Phase I Interim Measures/Interim Remedial Action Plan Program - The Solar Ponds Remediation program was represented at the Federal Environmental Restoration II conference and exhibition, Advanced Methods for Groundwater Pollution Control Symposium, and the EG&G Environmental Conference. A paper and presentation entitled "Rocky Flats Solar Evaporation Ponds - RCRA Hybrid Closure Case Study" was provided. The paper and presentation described the Phase I selected alternative and post-closure monitoring plan for remediation of the solar evaporation ponds.

The remediation subcontractor Statement of Work was revised to include the placement of treated sludge underneath the engineered barrier, geotechnical work to determine slope stability, Title III services, the issuance of the Site Preparation Title II as a separate package, the inclusion of Building 788 in the rest of the IM/IRA, and the existing utility verification work. This Statement of Work is being reviewed and will be issued to the subcontractor for its proposal. This effort is being done in parallel with a Baseline Change Proposal and presentation to the regulatory agencies for disposal of treated sludge under the cap.

The OU 4 Phase I RFI/RI Report, a component of the IM/IRA Decision Document, was delivered to the regulatory agencies on May 27, 1994, in accordance with the IAG.

The OU 4 Post-Closure Monitoring Plan, a component of the IM/IRA Decision Document, was delivered to the regulatory agencies on May 27, 1994, in accordance with the IAG.

The transmittal of these documents fulfills DOE's IAG commitments for the OU 4 IM/IRA and the OU 4 Phase II RFI/RI Programs for the first IAG submissions.

Regulatory - To allow DOE to store solar pond sludges in the new 750 Pad tank farm, a change to RCRA interim status is required from the State of Colorado. Following DOE's formal request for the change in November 1993, the CDH approved the storage of sludge from the 207A and B Ponds, and movement of that sludge into storage is nearing completion. The final approval, which covers storage of sludges from Pond 207C and the clarifier, was received May 9, 1994, with five conditions. Four of those conditions have already been incorporated into the sludge storage project; no further action is required. These four resolved conditions involve tank inspection procedures, tank certifications, installation of coupons to evaluate tank material compatibility, and storage of OU 4 drill cuttings. A fifth condition imposed by the CDH would require resampling and recharacterization of the sludges under the general waste analysis regulations (6 CCR 1007-3 §265.13(a)(1)). DOE feels that the requirements of this section have been met as demonstrated by data provided to the CDH previously and will communicate this interpretation to the CDH representatives. Sludges from Pond 207C and the clarifier will not be transferred to

storage tanks until the CDH's concurrence with DOE's position is obtained. The 207C Pond sludge must be milled prior to transfer, and that operation will proceed. If the interim status condition is not resolved before milling is complete, a day-for-day slip will occur with costs incurred for idle time.

Pond Sludge Status and Issues - Bulk sludge removal was completed in B South Pond during the month. To date, about 337,000 gallons of sludge have been transferred into 27 tanks in Tents Three and Four, as a result of 267 vacuuming runs. Final wash down and cleanup operations continued in B South Pond. About two-thirds of the pond surface has been cleaned.

Decanting of previously filled tanks continued. To date, about 120,000 gallons of clear water have been removed from the tanks in Tent Three. Based on the decanting results thus far, it appears that the B Pond sludge can be consolidated such that several of the 27 tanks presently in use can be emptied and used for C Pond. This might eliminate the need for purchase of additional tanks.

Preparations continue for operations in C Pond and the clarifier. All procedures are complete except for the Health and Safety Plan. As soon as the Health and Safety Plan is completed and all personnel are trained to it, salt-milling operations will begin in C Pond.

The Accelerated Sludge Removal Program "Special Assessment" is proceeding. The only remaining pre-operational issues to be resolved are as follows: (1) completion of waste solidification required training; (2) completion of final Professional Engineer Tank certification; (3) pre-evolution meeting documentation, emergency response shift order briefing, and posting; and (4) receipt of authorization to proceed with operations from Environmental Operations Management. Salt-milling operations are expected to begin in early June, 1994.

Planned Work for June

- Commence vertical drilling in Pond 207B South.
- Commence sludge removal operations in Pond 207C (this activity is dependent on completion of salt milling).
- Commence Title II Design of Phase II remediation.
- Commence Title II design for vehicle access gate at Portal 3 and several other early actions.

Problems

To allow DOE to store Solar Pond sludges in the new 750 Pad tank farm, a change to RCRA interim status is required from the CDH. CDH approved the storage of sludge from the 207A and B Ponds but only conditionally approved sludges from Pond 207C and the clarifier, pending five conditions. Four of those conditions have already been incorporated into the sludge storage project, and no further action is required. A fifth condition imposed by the CDH would require resampling and re-characterization of the sludges under the general waste analysis regulations. DOE feels that the requirements of this section have been met as demonstrated by data previously provided to the CDH. Sludges from Pond 207C and the clarifier will not be transferred to storage tanks until the CDH's concurrence with DOE's position is obtained. The 207C Pond sludge must be milled prior to transfer; and that operation will proceed. If the interim status condition is not resolved before milling is complete, a day-for-day slip will occur with costs incurred for idle time.

Open Items

Incorporate treated pond sludge into the IM/IRA for disposal under the remediation cap.

There is uncertainty regarding acceptance of the State of Colorado's Corrective Action Management Unit regulation. The State of Colorado has not yet completed this rulemaking.

2.5 OU 5 - WOMAN CREEK

This activity encompasses assessment and remediation of 11 IHSSs in the Woman Creek drainage: Original Landfill (IHSS 115); Ash Pits (IHSS 133.1 to 133.4); Incinerator (IHSS 133.5); Concrete Wash Pad (IHSS 133.6); Detention Ponds C-1 and C-2 (IHSS 142.10 and 142.11); Surface Disturbance (IHSS 209), southeast of Building 881; and Water Treatment Plant Backwash Pond (IHSS 196). Two additional surface disturbances have been identified, one south of the Ash Pits and a second west of IHSS 209. These last two sites have been included in the OU 5 Work Plan. IHSS 196 has been administratively assigned to this OU. Possible contamination in this OU was caused by landfill operations, stormwater runoff into holding ponds, and ash-pit operations. Constituents in OU 5 are believed to include depleted uranium, metals, pesticides/polychlorinated biphenyls, and volatile organic compounds. Media affected include soils, sediments, surface water, groundwater, and air.

Scope of Work Change This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	05 Apr 91
	Submit Final Phase I RFI/RI Work Plan	30 Aug 91

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	30 Nov 93		11 May 95*
Submit Final Phase I RFI/RI Report	03 May 94		14 Nov 95*

* Completion date to be rescheduled due to Human Health Risk Assessment issues work stoppage.

May Work Activity Status The EPA comment/response sheets on the Draft TM #13, *Modeling*, were received by DOE on May 4, 1994.

A technical review of the Draft TM #15, *Addendum to the Field Sampling Plan*, was completed by DOE. The final draft document, incorporating the DOE comments, was submitted to EPA and CDH on May 16, 1994.

A meeting was held on May 23, 1994, among EPA, CDH, and DOE to discuss progress-to-date on the OU 5 RI and to present the Draft TM #15. This document directs the

additional field work necessary to accelerate a second phase of field work during the current investigation, alleviating the need for a Phase II RFI/RI Report, identifies data gaps in the field work, and develops a Field Sampling Plan to address these needs. In summary, the major components to the Field Sampling Plan are additional boring and groundwater monitoring wells at the Ash Pits (IHSS 133.1 through 133.4) and additional groundwater wells at the Original Landfill (IHSS 115). Also, at the Original Landfill, a geotechnical investigation needs to be conducted to address slope stability. There have been slope failures within the Original Landfill, and if the preferred remediation is to stabilize and cap, additional information in the form of physical characteristics of landfill material will be required. This information can be obtained by drilling a series of borings and capturing geotechnical parameters. A high-purity Germanium survey and air monitoring activities are also required. The EPA and the CDH were receptive to this additional work.

If the information developed from the proposed Field Sampling Plan is to be incorporated in the first draft of the RI Report, then the schedule for the final deliverable may be impacted from 6 to 12 months. A schedule is currently being prepared to evaluate the impact of these changes and may take the Human Health Risk Assessment off the critical path and replace it with the implementation of the Field Sampling Plan and analytical data turnaround time.

Approximately 150 Investigative Derived Material drums for OU 5 were dispositioned in May 1994.

The statistical application software code for background comparisons for the Gilbert methodology continues. The testing of an example set of data was made available for validation against the statistical application software code.

Technical Memoranda

Project

OU 5 - Woman Creek Priority Drainage Remedial Investigation

TM #1

TM Title

TM Status

Surface Water and Sediments

When preparation is concluded or is estimated to be concluded: 30 Nov 92

Projected date of submittal to EPA/CDH: 30 Nov 92
Actual date of submittal: 13 Oct 92

TM #2
TM Title
TM Status

Surface Geophysics
When preparation is concluded or is estimated to be
concluded: 30 Nov 92
Projected date of submittal to EPA/CDH: 30 Nov 92
Actual date of submittal: 13 Oct 92

TM #3
TM Title
TM Status

Soil Sampling at IHSS 115
When preparation is concluded or is estimated to be
concluded: 07 May 93
Projected date of submittal to EPA/CDH: 07 May 93
Actual date of submittal: 26 Jan 93

TM #4
TM Title
TM Status

Soil Sampling at IHSS 133
When preparation is concluded or is estimated to be
concluded: 07 Jun 93
Projected date of submittal to EPA/CDH: 07 Jun 93
Actual date of submittal: 12 Apr 93

TM #5
TM Title
TM Status

Soil Gas Sampling at IHSS 115
When preparation is concluded or is estimated to be
concluded: 07 May 93
Projected date of submittal to EPA/CDH: 07 May 93
Actual date of submittal: 25 Mar 93

TM #6
TM Title
TM Status

Cone Penetrometer at IHSS 115
When preparation is concluded or is estimated to be
concluded: 14 Apr 93
Projected date of submittal to EPA/CDH: 14 Apr 93
Actual date of submittal: 25 Mar 93

TM #7
TM Title
TM Status

Soil Borings at IHSS 133
When preparation is concluded or is estimated to be
concluded: 07 May 93
Projected date of submittal to EPA/CDH: 07 May 93
Actual date of submittal: 19 Feb 93

TM #8
TM Title
TM Status

Monitoring Wells at IHSS 115
TM 8, has been canceled and has been replaced by a
letter outlining the justification behind the location of the
wells in IHSS 115.

TM #9	
TM Title	Monitoring Wells at IHSS 133, Ash Pits, Incinerator and Concrete Wash Pad
TM Status	When preparation is concluded or is estimated to be concluded: 14 May 93 Projected date of submittal to EPA/CDH: 06 May 93 Actual date of submittal: 06 May 93 EPA/CDH comments scheduled: 11 Jun 93 Actual date of submittal: 28 Jun 93
TM #10	
TM Title	Soil Borings at IHSS 209
TM Status	When preparation is concluded or is estimated to be concluded: 06 Mar 93 Projected date of submittal to EPA/CDH: 06 Mar 93 Actual date of submittal: 06 Mar 93
TM #11	
TM Title	Contaminants of Concern
TM Status	When preparation is concluded or is estimated to be concluded: 17 Aug 94 (Assuming the stop-work order is rescinded April 1, 1994.)
TM #12	
TM Title	Exposure Scenarios
TM Status	When preparation is concluded or is estimated to be concluded: 24 Nov 93 Projected date of submittal to EPA/CDH: Submittal of TM #12 was delayed due to the Human Health Risk Assessment stop work order. Actual date of submittal: N/A
TM #13	
TM Title	Modeling
TM Status	When preparation is concluded or is estimated to be concluded: 12 Jan 94 Projected date of submittal to EPA/CDH: Submittal of TM #13 was delayed due to the Human Health Risk Assessment stop work order. Actual date of submittal: To be determined
TM #14	
TM Title	Toxicity Assessment
TM Status	When preparation is concluded or is estimated to be concluded: 17 Aug 94 Projected date of submittal to EPA/CDH: 17 Aug 94 Actual date of submittal: To be determined

TM #15

TM Title

TM Status

Addendum to the Field Sampling Plan

When preparation is concluded or is estimated to be concluded: 22 Jul 94

Projected date of submittal to EPA/CDH: 22 Jul 94

Actual date of submittal: 16 May 94

Planned Work for June

- Continue work on the Human Health Risk Assessment (data aggregation and background statistical analysis).
- Finalize TM #13.
- Receive regulatory agencies' approval and finalize TM #15.

Problems

None

Open Items

The revised schedule, which incorporates impacts from the Human Health Risk Assessment stop work order, has not been approved.

2.6 OU 6 - WALNUT CREEK

This activity encompasses assessment and remediation in the Walnut Creek Drainage of 19 IHSSs: A-Series Detention Ponds, Ponds A-1 through A-4 (IHSS 142.1 through 142.4 and 142.12); the B-Series Detention Ponds, Ponds B-1 through B-5 (IHSS 142.5 through 142.9); the North Spray Area Field (IHSS 167.1); the East Area Spray Field (IHSS 216.1), the Trenches A, B, and C (IHSS 166.1, 166.2, and 166.3); the Sludge Dispersal Area (IHSS 141); the Triangle Area (IHSS 165); the Old Outfall Area (IHSS 143); and the Soil Dump Area (IHSS 156.2).

Completion of field operations resulted in collection of the following samples from the IHSSs in OU 6: stream sediment, pond sediment, surface soil, subsurface soil, and surface and groundwater.

Eleven new groundwater monitoring wells were installed in OU 6 to supplement five existing wells. These were sampled quarterly for one year. Geophysical surveys and radiation surveys were performed in selected areas to supplement the sampling activities.

The regulatory agencies have proposed a new IM/IRA on the operation of the Rocky Flats ponds. On April 15, 1994, the regulatory agencies and DOE agreed that the ponds will be managed by the Pond Water Management IM/IRA.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	19 Apr 91
	Submit Final Phase I RFI/RI Work Plan	16 Sep 91

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	03 Aug 93	10 Jun 94	11 May 95*
Submit Final Phase I RFI/RI Report	07 Jan 94	18 Nov 94	16 Nov 95*

* Completion date to be rescheduled due to Human Health Risk Assessment issues work stoppage.

May Work Activity Status On May 18, 1994, a meeting was held with EPA to provide additional Risk Assessment guidance.

The polychlorinated biphenyl sampling project began on May 23, 1994, and will continue for approximately five

weeks. Representatives from the regulatory agencies visited the site on May 27, 1994, to view the sampling method and locations.

On May 25, 1994, the regulatory agencies held a meeting to further clarify the method expected to be used by OU subcontractors for source area delineation during data aggregation.

Background comparison was completed on the analytical data for OU 6 in May 1994. In addition, contaminant toxicity screening and nature and extent activities were completed this month. Work continues on Section 3, Physical Characteristics, of the final report.

Approximately 150 Investigative Derived Material drums for OU 6 were dispositioned this month.

The Human Health Risk Assessment schedules were rescoped. The RFI/RI schedule, which gives the IAG Table Six milestones, was presented to the regulatory agencies on May 10, 1994. EPA decided that further clarification was necessary on several issues; these issues need to be addressed before schedules can be analyzed.

Pond Water Interim Measure/Interim Remedial Action -

On May 4, 1994, a meeting was held among EPA, CDH, DOE, and EG&G. The regulatory agencies stated that they expected a formal responsiveness summary to their comments on the Draft Pond Water Management IM/IRA Decision Document that was submitted on November 22, 1993. DOE agreed to provide a written draft of the Rocky Flats position on the regulatory agencies' comments in the form of two sets of responses. In May 1994, DOE presented a brief of the proposed activities for a negotiation working group to develop IM/IRA administrative controls.

On May 25, 1994, a meeting was held among the regulatory agencies, DOE, and EG&G to discuss Pond Water Management IM/IRA comment responses and outstanding issues. The agencies repeatedly stated that through this IM/IRA, Rocky Flats has to prove that all mechanisms work and systems are under control.

Sampling and standards issues and the proposed IM/IRA schedule were discussed. DOE stated that the purpose of the upcoming June 8, 1994, meeting was to provide background information on the Rocky Flats ponds, their

current operations and limitations, and a proposal for future operations. This meeting will include the cities of Westminster and Broomfield and the United States Fish and Wildlife Service.

The regulatory agencies have defined the scope of the Pond Water Management IM/IRA to be much larger than the Individual Hazardous Substance Site (IHSS) boundaries of OUs 5 and 6. The regulatory agencies envision a sitewide management program with the possible exclusion of the Industrial Area (IA), with respect to protection of the watersheds, and would include appropriate corrective measures and accountability across multiple divisions and programs.

The formal specification for the Mobile Water Treatment System is being written and is scheduled for completion on June 17, 1994. At that time, the specification will be submitted to Rocky Flats Procurement for the solicitation of bids.

The technical evaluation for the Reverse Osmosis Filter Pilot Test subcontract was submitted to Rocky Flats Procurement for award and negotiations of the subcontract in May 1994. The pilot test will be conducted in June 1994.

Technical Memoranda

Project

OU 6 - Walnut Creek

TM #1

TM Title

TM Status

Work Plan Modifications

Approved by EPA: 08 Jan 93

TM #2

TM Title

TM Status

Exposure Scenarios

When preparation is concluded or estimated to be concluded: 15 Nov 94

Projected date of submittal to EPA/CDH: 15 Nov 94

Actual date of submittal: To be determined

Date EPA/CDH comments received: To be determined

TM #3

TM Title

TM Status

Modeling Description

When preparation is concluded or is estimated to be concluded: 10 Nov 93

Projected date of submittal to EPA/CDH: 10 Nov 93

Actual date of submittal: 10 Nov 93
Date EPA/CDH comments received: 23 Dec 93

TM #4
TM Title
TM Status

Contaminants of Concern
When preparation is concluded or is estimated to be concluded: 29 Aug 94
Projected date of submittal to EPA/CDH: 29 Aug 94
Actual date of submittal: To be determined
Date EPA/CDH comments received: To be determined

TM #5
TM Title
TM Status

Toxicity Factors
When preparation is concluded or is estimated to be concluded: 05 Aug 94
Projected date of submittal to EPA/CDH: 05 Aug 94
Actual date of submittal: To be determined
Date EPA/CDH comments received: To be determined

Planned Work for June

- Continue work on the FS.
- Complete sediment and biota sampling to characterize potentially unknown contaminant problem, polychlorinated biphenyl contamination, and risk.
- Revise scope and schedule for the Human Health Risk Assessment. These schedules will be reviewed by working groups consisting of EPA, CDH, DOE, and EG&G. These schedules will be submitted to EPA on June 30, 1994.

Problems

None

Open Items

The revised schedule, which incorporates impacts from the Human Health Risk Assessment stop work order, has not been approved.

2.7 OU 7 - PRESENT LANDFILL

OU 7, the Present Landfill, is located north of the plant complex on the western edge of an unnamed tributary of North Walnut Creek and is comprised of eight IHSSs. IHSS 114 includes landfill waste and leachate at the Present Landfill, soils beneath the landfill potentially contaminated with leachate, and sediments and water in the East Landfill Pond. IHSS 203 contains potentially contaminated soils at the Inactive Hazardous Waste Storage Area. A section of the Present Landfill located in the southwest corner was used between 1986 and 1987 as a temporary storage area for hazardous waste. The Present Landfill began operation in August 1968 and was originally constructed to provide for disposal of Rocky Flats nonradioactive and nonhazardous wastes. In September 1973, tritium was detected in leachate from the landfill. During the mid-1980s, extensive investigations were conducted on the waste streams (types) placed into the landfill; consequently, hazardous wastes/hazardous constituents were identified. Although currently operating as a nonhazardous sanitary landfill, the facility is considered an inactive hazardous waste disposal unit undergoing RCRA closure. In order to maintain the landfill pond at an acceptable volume to prevent discharge, spray evaporation of landfill pond water was applied to the north and south of the landfill pond comprising IHSSs 167.2 and 167.3, respectively. IHSS 167.1 located to the north of the landfill pond was used as a spray evaporation area for landfill pond water and Building 771 and 774 footing drains water. Prior to 1964, IHSSs 166.1, 166.2, and 166.3 were used as sludge disposal trenches for sanitary sludge from Building 995.

Scope of Work Changes This Period

As a result of the Senior Executive Committee Dispute Resolution, four new milestones were added to the OU 7 work scope concerning the Landfill Leachate Collection IM/IRA.

Technical Approach Changes This Period

As a result of the Senior Executive Committee Dispute Resolution, a separate IM/IRA is required for the landfill leachate.

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	28 Aug 91
Submit Draft Phase I RFI/RI Report	23 May 94
Submit Draft Phase II RFI/RI Work Plan	23 May 94

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Final Phase I RFI/RI Report	16 Mar 94		02 Sep 94*
Submit Preliminary Draft IM/IRA	14 Oct 94		14 Oct 94
Release Final Draft IM/IRA for Public Comment	28 Nov 94		28 Nov 94
Submit Final Responsiveness Summary and IM/IRA	10 Mar 95		10 Mar 95
Release Final Responsiveness Summary and IM/IRA	24 Mar 95		24 Mar 95
Submit Draft Phase I Proposed IM/IRA DD	01 Nov 94		14 Feb 97*
Submit Final Phase II RFI/RI Work Plan	15 Feb 95		15 Apr 96*
Submit Final Phase I Proposed IM/IRA DD	06 Apr 95		16 Oct 97*
Submit IM/IRA Responsiveness Summary	14 Aug 95		14 May 98*

* Completion date to be rescheduled due to Human Health Risk Assessment issues work stoppage.
Current scoping negotiations projected to result in deletion of these milestones.

May Work Activity Status

A meeting was held on May 4, 1994, among CDH, EPA, DOE, and EG&G to discuss the landfill pond water. Rocky Flats proposes to drain the landfill pond water and transfer it to the A-3 pond for the purposes of flood control, if the landfill pond is not considered a listed FO.39 (leachate) under the RCRA. This is consistent with previous guidance from CDH.

The TM, *Revised Work Plan*, was submitted to the regulatory agencies for review on May 23, 1994. This document includes the Data Quality Objectives, incorporation of presumptive remedies, and Corrective Action Management Unit concepts for landfill closure. Upon submittal of this document, the IAG milestones for the Draft Phase I RFI/RI Report and the Draft Phase II RFI/RI Work Plan were satisfied. According to the OU 7 schedule, the regulatory agencies should return comments by June 13, 1994.

The Landfill Leachate Collection IM/IRA is under way, and the design team is becoming more familiar with the project. A meeting was held with the project managers and the design team on May 25, 1994, to discuss ideas and objectives for the conceptual design.

The Health and Safety Plan Addendum is undergoing final review in response to internal comments.

Technical Memoranda

Project

OU 7 - Present Landfill

TM #1

TM Title

TM Status

Exposure Scenarios

Initial reviews completed by DOE Headquarters and DOE. Review completed by EPA and CDH. Response summary developed and submitted to all parties for review. Reviews complete. Revised response summary completed 25 May 93, with a final review under way prior to transmittal to the agencies.

TM #2

TM Title

TM Status

Model Description

Transmitted to EPA and CDH for review: 08 Jan 93

Initial review by EPA, CDH, and DOE completed:
30 April 93

Draft response summary complete: 25 May 93

TM #3

TM Title

TM Status

Addendum to Final Phase I RFI/RI Work Plan. Surface Soil and Asbestos Pit Disposal Area Characterization Plan.

Transmitted to DOE for review: 05 Feb 93

Transmitted to the EPA and CDH for review: 08 Feb 93

Comments received: 26 Apr 93

Conditional approval by the EPA and CDH received:
22 Feb 93

Clarification of outstanding comments from EPA and CDH received: 03 May 93

TM #4

TM Title

TM Status

Contaminants of Concern

When preparation is concluded or is estimated to be concluded: To be determined

Projected date of submittal to EPA/CDH: To be determined

Actual date of submittal: To be determined

TM

TM Title

TM Status

Revised Work Plan

Transmitted to EPA and CDH for review: 23 May 94

Comments received: To be determined

Planned Work for June

- Continue development of the Environmental Assessment.
- Continue work on options analysis and conceptual design for leachate collection and landfill closure.
- Receive formal approval from the regulatory agencies on the TM, *Revised Work Plan*.
- Conduct Readiness Review for field activities.
- Obtain necessary permits for field activities.

Problems

The regulatory agencies have verbally informed project personnel that review of the TM, *Revised Work Plan*, will not be completed by June 13, 1994.

Open Items

None

2.8 OU 8 - 700 AREA

The 24 IHSSs that constitute OU 8 encompass separate sites inside and around the production area of Rocky Flats. Contamination sources within the various IHSSs include aboveground and underground tanks, equipment washing areas, and releases inside buildings which potentially affected areas outside the buildings. Contaminants from these sources may have been introduced into the environment through spills on the ground surface, underground leakage and infiltration, and in some cases through precipitation runoff. The chemical composition of the contaminants varies widely between the IHSSs, ranging from low-level radioactive mixed wastes to nonradioactive organic and inorganic compounds.

OU 8 is within the IA at Rocky Flats and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these IA OUs are being investigated together because of similar field investigation techniques (e.g., surface soil sampling, and radiation survey). The main benefits from integrated management of the IA OUs are improved oversight, coordination, and reduced costs.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	01 May 92
	Submit Final Phase I RFI/RI Work Plan	01 Dec 92

Future IAG Milestone Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	14 Feb 94	Denied	02 Nov 15
Submit Final Phase I RFI/RI Report	12 Jul 94	Denied	10 Feb 98

May Work Activity Status The regulatory agencies, DOE, and EG&G met May 24, 1994, to discuss amending the language in the IAG that would facilitate pursuing accelerated actions at Rocky Flats. The proposed revisions to the IAG would allow all parties to agree on how accelerated activities should be implemented.

The Preliminary Draft TM #1, *Data Compilation for Foundation and Building Under Drains*, is being reviewed by the regulatory agencies, DOE, and EG&G. Regulatory agency comments are pending.

The field team is observing dye testing (of the foundation drains) that is being performed. Data from the observations will be utilized to support the completion of the TM #1, *Data Compilation for Foundation and Building Under Drains*, for OU 8.

Data collected from the field work using the high-purity Germanium detector for radiation surveys on OU 8 IHSS are being input into the Rocky Flats Environmental Database System and the Geographical Information System. The new information will be compiled with the existing high-purity Germanium detector data for the IA at Rocky Flats. New high-purity Germanium detector survey maps will be generated and submitted to DOE when available.

Work on the technical baseline schedule was completed on May 16, 1994. The baseline schedule is being loaded into the EG&G system. Additionally, the resources are to be loaded within the baseline schedule.

Industrial Area Operable Units (8, 9, 10, 12, 13, and 14) - EPA, CDH, DOE, and EG&G met to discuss the current status of the accelerated cleanup approach and the prioritization of IHSS within the IA OUs. This is the first formal presentation to the regulatory agencies on the recent proposals by DOE on how environmental work should be reorganized based on the changes in scope and requirements since the IAG was established.

EPA and CDH visited the soil gas survey operations for the IA OUs on May 18, 1994. Responses were prepared to address concerns made by the regulatory agencies.

On May 23, 1994, DOE requested that EG&G set up a quality surveillance for soil gas, surficial soil sampling, asphalt and concrete sampling, and radiation surveys using the high-purity Germanium detector. DOE is working with EG&G to set up specific times to perform the requested surveillances.

Technical Memoranda

Project

OU 8 - 700 Area

TM #1

TM Title

Footing/Under Drains Data Compilation and Field Sampling Plan

TM Status

Projected date of submittal to EPA/CDH: 22 Apr 94

Actual date of submittal: 05 May 94

Date EPA/CDH comments received: Pending

Planned Work for June

- Complete work on revisions to the resource-loaded project technical schedule, in support of FY95 Budget Call preparation.
- Process contract modification to address non-intrusive sample collection and analysis.

Problems

None

Open Items

None

2.9 OU 9 - ORIGINAL PROCESS WASTE LINES

This activity involves characterizing a series of tanks and associated process waste lines. The original process waste lines consisted of 35,000 feet of buried pipeline that transferred process wastes from production buildings to onsite treatment plants. A system of 60 designated pipe sections, 39 single and multiple storage tank sites, and three other areas of suspected process waste leakage is included in OU 9. The system was placed into operation in 1952, and additions were made to the system through 1975. The original system was replaced between 1975 and 1983 by the new process waste system. Some tanks and lines from the original system were incorporated into either the new process waste system or the fire water deluge collection system.

The original system is known to have transported or stored various aqueous process wastes containing low-level radioactive materials, nitrates, caustics, and acids. Small quantities of other liquids were also introduced in the system, including medical decontamination fluids, miscellaneous laboratory liquids, and laundry effluent. The RFI/RI Phase I Work Plan includes inspection and sampling of the tanks and pipelines that are accessible and soil sampling to determine the extent of contamination in the vadose zone. The soil sampling will be performed by installing test pits and boring where known or suspected releases occurred, near pipe joints and valves, at approximately 100 to 200-foot intervals along the pipelines, and by installing borings around the outdoor tanks. Soil characterization studies will determine the need for soil removal and/or treatment. The results of the Phase I RFI/RI will determine the need for interim and/or final remediation action.

OU 9 is within the IA at Rocky Flats and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these IA OUs are being investigated together because of similar field investigation techniques (e.g., surface soil sampling, and radiation survey). The main benefits from integrated management of the IA OUs are improved oversight, coordination, and reduced costs.

**Scope of Work
Changes This Period**

None

**Technical Approach
Changes This Period**

None

**IAG Milestone
Accomplishments**

Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
Submit Final Phase I RFI/RI Work Plan	26 Nov 91

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	11 Apr 94	Denied	25 Oct 02
Submit Final Phase I RFI/RI Report	06 Sep 94	Denied	16 Sep 03
Submit Draft Phase II RFI/RI Work Plan	10 Mar 95		23 Jul 04
Submit Draft Phase I Proposed IM/IRA DD	01 May 95		31 Oct 03
Submit Final Phase II RFI/RI Work Plan	07 Aug 95		01 Apr 05
Submit Final Phase I Proposed IM/IRA DD	27 Sep 95		12 Jul 04

**May Work Activity
Status**

TM #1, *Volume I, Part A, Field Sampling Plan for Outside Tanks*, was finalized and was received by DOE on May 31, 1994.

Work continues on the preparation of the Draft 1, TM #1, *Volume II, Part A, Field Sampling Plan for Outside Pipelines*. The information gathered during the site walks continues to be evaluated and prepared for incorporation into the TM. The basis for the technical approach was developed.

CDH indicated that active outside tanks that are not RCRA Interim Status tanks should be included in the outside tank investigation. This would mean that six additional tanks need to be included in the investigation. DOE is actively working on this issue and evaluating if these tanks should be included. The tanks that CDH wants to include are Original Process Waste Lines Tanks 8, 9, 11, and 30. Tank 8 and Tank 9 each consist of two tanks that are currently used as plenum deluge catch tanks. Tanks 11 and 30 are active permitted secondary containment (RCRA Part B Secondary Containment Reference No. 2011) (4). A site walk was conducted to look at these areas on May 17, 1994. These tanks are all underground concrete tanks, posted Radiologically Contaminated Areas, and confined spaces.

Investigations may be extremely difficult because of the access requirements. If these active tanks are to be addressed, an addendum to the TM shall be prepared.

Six tanks in four tank sites in OU 9 have been identified as potential early action areas. A letter describing the tank areas was received by DOE. The letter requested regulatory agency involvement as this will greatly increase the overall chance of success. It should be noted that field sampling has not occurred at any sites,

but that all four of the sites are slated for sampling in the coming months.

A draft plan for streamlining the RFI/RI at OU 9 is under preparation and will be submitted to DOE for concurrence. EPA and CDH need to be approached on some of these activities as they involve major IAG milestones such as the elimination of the Phase II RFI/RI and the IM/IRA.

Technical Memoranda

Project

OU 9 - Original Process Waste Lines

TM #1

TM Title

Field Sampling Plan - Original Process Waste Lines - Volume I, Part A, Outside Tanks

TM Status

When preparation is concluded or is estimated to be concluded: Jan 94

Projected date of submittal to EPA/CDH: Mar 94

Actual date of submittal: 15 Mar 94

Date EPA/CDH comments received: To be determined

TM #1

TM Title

Field Sampling Plan - Volume II, Part A, Outside Pipelines

TM Status

When preparation is concluded or is estimated to be concluded: Jul 94

Projected date of submittal to EPA/CDH: Aug 94

Actual date of submittal: N/A

Date EPA/CDH comments received: N/A

Planned Work for June

- Continue preparation of TM #1, *Volume II, Part A, Field Sampling Plan for Outside Pipelines*.
- Prepare for field investigation of outside tanks.

Problems

See below

Open Items

The issue of whether non-RCRA active outside tanks are going to be investigated along with inactive tanks or whether this investigation will be conducted with the RCRA tanks needs to be resolved to completely address CDH's comments.

2.10 OU 10 - OTHER OUTSIDE CLOSURES

OU 10 is composed of 15 IHSSs scattered throughout plantsite. Six of the IHSSs are located in the Protected Area, two are located in the buffer zone near the present landfill, and the remaining IHSSs are located near various buildings throughout plantsite. The types of wastes and contaminants identified at these sites include pondcrete/saltcrete storage, diesel and fuel spills, and heavy metal contamination. A Draft and Final TM will be developed that will summarize the non-intrusive portion of the OU 10 field work. Other IHSS-specific intrusive activities are scheduled for FY94.

OU 10 is currently being managed collectively with the other IA OUs (OUs 8, 9, 12, 13, 14). All of these OUs are being investigated collectively due to similarities in the field work for these OUs (e. g., surficial soil sampling, *in-situ* radiation surveys, and soil gas sampling). Combining this work will result in improved oversight, coordination, and reduced costs.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	27 Nov 91
	Submit Final Phase I RFI/RI Work Plan	01 May 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	25 Aug 94		02 Nov 15
Submit Final Phase I RFI/RI Report	30 Jan 95		19 Jul 16
Submit Draft Phase I Proposed IM/IRA DD	26 May 95		26 Feb 18
Submit Draft Phase II RFI/RI Work Plan	27 Jun 95		25 May 17

May Work Activity Status The regulatory agencies conducted a field inspection of the sampling activity and the analytical trailer on May 18, 1994, to review the process and procedures and analytical methods being used for this activity. In the opinion of the CDH chemist, who was leading the field inspection, the sampling methods and quality assurance protocols that were being used in the field were inadequate, and the results that were being obtained would be invalid. CDH submitted a list of requests to be responded to by DOE. DOE and EG&G are working to resolve the issues raised by the inspection.

After a one-day shutdown caused by quality assurance concerns raised by the CDH, the soil gas sample collection at IHSSs 170/174 continues. Approximately 110 samples have been collected to date. It is anticipated that all soil gas sampling will be completed in the Property Utilization and Disposal Yard (IHSSs 170/174) by June 3, 1994.

Applications for soil disturbance permits to complete the paved area surficial soil samples in OU 10 were submitted May 1994. The remaining paved area surficial soil samples in OU 10 will be collected in conjunction with the OU 12 surficial soil sampling program. This is being done to most effectively utilize the asphalt coring machine presently being used in OU 12.

Preliminary evaluation of invalidated non-intrusive sample data began in preparation for development of the OU 10 Phase I Non-intrusive TM #1. The Draft TM is tentatively scheduled to be delivered to the regulatory agencies in November 1994.

Industrial Area Individual Hazardous Substance Site Material Removal/Accelerated Cleanup Actions -

Funding has not been formally approved for the removal of tanks, IHSS 129, in OU 10. There are several technical and regulatory issues affecting the implementation of the tank removal that continue to be reviewed and resolved.

A site visit of all IA IHSSs was conducted on May 13, 1994. Representatives from EG&G and the Accelerated Cleanup Group toured the IA OUs to determine which areas contained materials that needed to be removed and the priority given to each area. A preliminary schedule was developed for removing materials from IHSS 176, 964 laydown area.

Technical Memoranda - TM #1, for the non-intrusive field work, is under development. The Draft TM is tentatively scheduled to be delivered to the regulatory agencies in November 1994.

Planned Work for June

- Complete soil gas surveys in IHSS 176.
- Complete paved surface soil sampling.
- Continue non-intrusive data compilation.

Problems None

Open Items There has been resolution of the issue concerning IHSSs 213 and 214. These areas still have not been administratively transferred to OU 4 or included as part of a RCRA Part B permit modification. No Phase I assessment work will be conducted at these IHSSs until all material has been removed.

2.11 OU 11 - WEST SPRAY FIELD

The West Spray Field is located within the Rocky Flats buffer zone immediately west of the plant security area. The West Spray Field was in operation from April 1982 to October 1985. During operation, excess liquids from solar evaporation ponds 207B North and Center (contaminated groundwater in the vicinity of the ponds and treated sanitary sewage effluent) were pumped periodically to the West Spray Field for spray application. The spray field boundary covers an area of approximately 105 acres, 38 of which received direct application of hazardous waste. The RFI/RI process will entail field studies to investigate the presence or absence of hazardous constituents in soil and groundwater.

Scope of Work Changes This Period None

Technical Approach Changes this Period In accordance with regulatory guidance, surficial soil sampling and sampling for volatile organic analytes in the subsurface materials and groundwater have been added to the Field Sampling Plan.

The RFI/RI investigation uncovered photographic evidence that the West Spray Field may have extended farther east than originally thought. The area in question will be added to the field investigation with a contract modification after going through change control.

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	08 Jun 90
	Submit Final Phase I RFI/RI Work Plan	02 Jan 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	20 Sep 94		18 Apr 95
Submit Final Phase I RFI/RI Report	22 Feb 95		03 Jan 96
Submit Draft Phase II RFI/RI Work Plan	21 Aug 95		25 Nov 96

May Work Activity Status Contractor pre-mobilization activities were completed this month in anticipation of a June 1994 startup of field work. This included completion of an Operational Readiness Review, Health and Safety Training and documentation, and all land-use permitting.

The Draft Final of TM #1, *Exposure Scenarios*, was submitted to the regulatory agencies on May 2, 1994.

This document was discussed, and regulatory agencies' comments were received for incorporation into the final document.

As part of the RFI/RI investigation, a background historical data review uncovered photographic evidence that the West Spray Field may have extended farther east than previously considered. A field walkdown and interviews with West Spray Field operating personnel indicate that this area should be included into the field sampling work starting in June 1994. A modification to the field sampling contract was started to cover this additional scope.

Technical Memoranda

Project

OU 11 - West Spray Field

TM

TM Title

TM Status

Revised Field Sampling Plan and Data Quality Objectives
Informally submitted to EPA/CDH: 02 Feb 94
Currently, undergoing revisions and addressing comments
Awaiting CDH comments

TM #1

TM Title

TM Status

Exposure Scenarios

When preparation is concluded or is estimated to be concluded: Mar 94 (late)
Projected date of submittal to EPA/CDH: 02 May 94
Actual date of submittal: 02 May 94
Date EPA/CDH comments received: N/A

TM #2

TM Title

TM Status

Modeling

When preparation is concluded or is estimated to be concluded: 22 Mar 94 (late)
Projected date of submittal to EPA/CDH: 12 May 94
Actual date of submittal: N/A
Date EPA/CDH comments received: N/A

TM #3

TM Title

TM Status

Contaminants of Concern

When preparation is concluded or is estimated to be concluded: 20 Sep 94
Projected date of submittal to EPA/CDH: 09 Nov 94
Actual date of submittal: N/A
Date EPA/CDH comments received: N/A

TM #4

TM Status

TM Status

Toxicity

When preparation is concluded or is estimated to be concluded: 10 Oct 94

Projected date of submittal to EPA/CDH: 12 Dec 94

Actual date of submittal: N/A

Date EPA/CDH comments received: N/A

Planned Work for June

- The subcontractor for the field sampling will mobilize and begin field work for the Phase I RFI/RI.
- The subcontract for field sampling will be modified for additional work scope (after going through change control) because of the expanded investigation area.

Problems

Photographic evidence uncovered during the RFI/RI historical data review indicated that the West Spray Field extended farther east than previously thought. After a field walkdown and interviews with West Spray Field operating personnel, it was determined that the area in question should be included in the RFI/RI field sampling that will begin in June 1994. This additional work scope will be added to the present subcontract by contract modification after it has gone through change control.

Open Items

None

2.12 OU 12 - 400/800 AREA

The 400/800 Area involves assessment and remediation of the following 10 IHSSs within the 400/800 Area: Multiple Solvent Spills at the West and South Loading Dock Areas (IHSSs 116.1 and 116.2); Fiberglassing Areas North and West of Building 664 (IHSSs 120.1 and 120.2); Cooling Tower Ponds - northeast and southwest of Building 460 (IHSSs 136.1, and 136.2); Building 881 - Conversion Site (147.2); Radioactive Site - South Area (IHSS 157.2); Acid Leaks (2) (IHSS 187); and Multiple Acid Spills (IHSS 189).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an Environmental Evaluation and a Human Health Risk Assessment. Implementation of this Work Plan includes field work and sample analysis. After implementation, a Phase I RFI/RI Report will be prepared. A Phase II Investigation may be performed as necessary. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation may consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision, release to the public, and implementation of the plan.

OU 12 is within the IA at Rocky Flats and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these IA OUs are being investigated together because of similar field investigation techniques (e.g., surface soil sampling, and radiation survey). The main benefits from integrated management of the IA OUs are improved oversight, coordination, and reduced costs.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone	Submit Draft Phase I RFI/RI Work Plan	08 May 92
Accomplishments	Submit Final Phase I RFI/RI Work Plan	05 Oct 92

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	20 Apr 94	Denied	11 Mar 99
Submit Final Phase I RFI/RI Report	15 Sep 94	Denied	17 Nov 99

May Work Activity Status

Surficial soil sampling activities in OU 12 are nearing completion. Surficial soil sampling in IHSS 157.2 is complete. Five samples remain to be taken in IHSS 116.1. These samples are located near a possible polychlorinated biphenyl site. The modification to the existing decontamination procedure was completed and is currently undergoing the document control process. When approved through the document control process, the remaining five samples will be taken and analyzed. The current analyte list for IHSS 116.1 does not include polychlorinated biphenyls but will be included for these samples.

A process waste line in Building 460 leaked in the past. The line is near IHSS 136.1 and in IHSS 157.2. The waste line was for a film developing process and included silver and cadmium. Samples are being taken in compliance with RCRA. In order to get to the pipe leakage area, the building personnel must cut a hole in the floor of the building and dig down to the pipe. This was determined to be an excellent opportunity to collect data regarding under-building contamination that may facilitate the investigation of the Cooling Tower Pond IHSS 136.1. An OU 12 field sampling crew took three samples in this area: one above the pipe but below any building fill material, one next to the pipe, and one below the pipe. The actual sampling took place on May 5, 1994.

Technical Memoranda

The first TM scheduled for OU 12 is the non-intrusive TM due in August 1994.

Planned Work for June

- Completion of the surficial soils samples in OU 12, including paved and unpaved areas and vertical profile samples.
- Staking locations and acquiring utility clearances for soil gas surveys.

Problems

None

Open Items

None

2.13 OU 13 - 100 AREA

Cleanup of the 100 Area involves the assessment and remediation of the following 14 IHSSs: Chemical Storage - North, Middle, and South Sites (IHSSs 117.1, 117.2 and 117.3); Oil Burn Pit #1 (IHSS 128); Lithium Metal Destruction Site (IHSS 134); Waste Spills (IHSS 148); Fuel Oil Tank (IHSS 152); Radioactive Site - North Area (IHSS 157.1); Radioactive Site - Building 551 (IHSS 158); Waste Peroxide Drum Burial (IHSS 169); Solvent Burning Ground (IHSS 171); Valve Vault 12 (IHSS 186); Caustic Leak (IHSS 190); the Hydrogen Peroxide Spill (IHSS 191); and the Scrap Metal Site (IHSS 197).

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an Environmental Evaluation and a Human Health Risk Assessment. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as part of the assessment.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase of the project. This process includes review and approval by the regulatory agencies, followed by a Record of Decision, release to the public, and implementation of the plan.

OU 13 is within the IA at Rocky Flats and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these IA OUs are being investigated together because of similar field investigation techniques (e.g., surface soil sampling, and radiation survey). The main benefits from integrated management of the IA OUs are improved oversight, coordination, and reduced costs.

Scope of Work Changes This Period None

Technical Approach Changes This Period None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	15 May 92
	Submit Final Phase I RFI/ RI Work Plan	12 Oct 92

Future IAG Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	08 Aug 94		24 Mar 99
Submit Final Phase I RFI/RI Report	11 Jan 95		02 Dec 99

**May Work Activity
Status**

DOE approved the revision of a draft letter report/sampling plan, and it was transmitted to CDH and EPA. The letter report is called OU 13 TM #1, *Addendum to the Field Sampling Plan*, and it makes slight changes to the field sampling plan and will become a controlled document. There is no milestone associated with its delivery; however, surficial soil sampling cannot begin until the regulatory agencies concur with the proposed sample locations. A meeting was held to discuss sampling locations with EPA, CDH, and DOE. Sampling maps were prepared, and several figures were reworked and received by DOE and distributed for review to the regulatory agencies at the end of May 1994. CDH approved of the surficial soil sampling locations in IHSSs 134 (North), 134 (South), 128, 171, and 157.1. CDH requested changes to sampling locations in IHSSs 117.11, 197, 158, 117.2, 117.3, 148, and 152.

Work continues on completing tasks necessary for the OU 13 Operational Readiness Review. Only two significant hurdles remain: the issuance of the OU 13 Work Plan as a controlled document and completion of TM #1 and issuance of it as a controlled document. EG&G is approximately 80 percent complete with the OU 13 records organization.

DOE requested a further modification of the procedure FO.28, Tank and Pipeline Investigation. A revision reflecting DOE's concerns is being prepared. DOE held a meeting, and concerns are being incorporated into the revised draft. A new draft of the procedure was completed, and a meeting was held to discuss the revisions. DOE submitted the revised draft to an independent auditor for comments.

Technical Memoranda

Project

OU 13 - 100 Area

TM #1

TM Title

TM Status

Addendum to Field Sampling Plan

When preparation is concluded or is estimated to be concluded: Feb 94

Projected date of submittal to EPA/CDH: Feb 94

Actual date of submittal: 03 Mar 94

Date EPA/CDH comments received: N/A

A non-intrusive TM will be prepared in FY95 summarizing the non-intrusive field work and recommending Stage II activities for the remedial investigation intrusive field work.

Planned Work for June

- Surficial soils sampling in approved IHSSs.
- Revision of sampling location in other IHSSs.
- Preparation of a proposal for a limited sediment sampling plan.
- Preparation of a Statement of Work for completion of Stage I Field Investigations and initiation of limited Stage II investigations.
- Preparation of a Statement of Work for Geographical Information System support for the IA OUs.

Problems

None

Open Items

The submission date of August 8, 1994, for the Draft Phase I RFI/RI Report will not be met.

2.14 OU 14 - RADIOACTIVE SITES

Work at the "Radioactive Sites" involves the assessment and remediation of the following eight IHSSs: Radioactive Site - 700 Area Site #1 and Site #2 (IHSS 131); Radioactive Soil Burial - Building 334 Parking Lot and Soil Dump Area (IHSSs 156.1); Building 444 Parking Lot (IHSS 160) and Building 664 (IHSS 161); and Radioactive Site - 700 Area Site #2 (IHSS 162); and Radioactive Sites - 800 Area which includes the Concrete Slab, Building 886 Spills, and the Building 889 Storage Pad (IHSSs 164.1, 164.2, and 164.3). In 1991, one of two Soil Dump Area IHSSs (156.2) was deleted from OU 14 and added to OU 6.

Assessment will consist of preparing a Phase I RFI/RI Work Plan, which will include both an Environmental Evaluation and a Human Health Risk Assessment. After implementation of this Work Plan, field work and sample analysis will be conducted, data will be analyzed, and the Phase I RI Report will be prepared. An FS to determine the best methods to remediate the area will be conducted as a subsequent phase to the assessment phase.

Remediation will consist of development and execution of a Remedial Action Plan based on results obtained during the assessment phase and feasibility study of the project. This process includes review and approval by EPA and CDH, followed by a Record of Decision, release to the public, and implementation of the plan.

OU 14 is within the IA at Rocky Flats and is being managed collectively with the other OUs that are within the IA. The IA OUs consist of OUs 8, 9, 10, 12, 13, and 14. All of these IA OUs are being investigated together because of similar field investigation techniques (e.g., surface soil sampling, and radiation survey). The main benefit from integrated management from the IA OUs are improved oversight, coordination, and reduced costs.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishments	Submit Draft Phase I RFI/RI Work Plan	26 Jun 92
	Submit Final Phase I RFI/RI Work Plan	19 Oct 92

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Schedule</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	20 Dec 94		13 Feb 01
Submit Final Phase I RFI/RI Report	23 May 95		22 Oct 01

May Work Activity Status

A proposal for a more streamlined and cost-efficient way of conducting the field investigations at OU 14 is being developed. Improvements to the approved Work Plan will center on the below-pavement investigations. OU 14 requires that samples be taken first below pavement grabs and followed by a 2-foot boring. If the results are positive, additional borings to a depth of 6 feet will be implemented. An alternative is being investigated that would use a geo-probe (cone penetrometer) to collect one set of samples to a total depth of 6 feet as the first stage of sampling. Samples from the four 6-foot composite could be stored until the results of the first round of sampling are back, thereby reducing the mobilization and collection costs substantially.

Work continues on the rebaselining of OU 14 and the reviewing tasks necessary for the Operable Readiness Review.

The inventory of the OU 14 records is complete, and a transmittal is being prepared to forward to the ER Records Center.

Technical Memoranda

The current Five-Year Plan indicates that two TMs, *Human Health Risk Assessment-Exposure Assessment* and *Human Health Risk Assessment-Modeling*, were scheduled for completion in March 1994. These tasks require rescheduling because of the integration of OUs 8, 9, 10, 12, 13, and 14. A new schedule has been developed. Currently, only non-intrusive/limited RI field work is scheduled for OU 14 in FY94.

A non-intrusive TM will be prepared in FY95 summarizing the non-intrusive field work and recommending Stage II activities for the RI intrusive field work.

Planned Work for June

- Evaluate and refine the development of the proposal outlined above.

Problems

None

Open Items

The submission date of December 20, 1994, for the Draft Phase I RFI/RI Report will not be met.

2.15 OU 15 - INSIDE BUILDING CLOSURES

OU 15 was originally comprised of the following eight IHSSs:

- IHSS 178, Building 881 - Drum Storage Area
- IHSS 179, Building 865 - Drum Storage Area
- IHSS 180, Building 883 - Drum Storage Area
- IHSS 204, RCRA Unit 45, Building 447 - Original Uranium Chip Roaster
- IHSS 211, RCRA Unit 26, Building 881 - Drum Storage Area
- IHSS 212, RCRA Unit 63, Building 374- Drum Storage Area
- IHSS 215, Unit 55, 12 - Tank T - 40
- IHSS 217, RCRA Unit 32, Building 881 - Cyanide Bench-Scale Treatment

During April 1992, IHSS 215, Unit 55.13 - Tank T-40, was deleted from OU 15 and added to OU 9 as part of an IHSS realignment pursuant to Part 32, Paragraph 191 (Additional Work or Modification to Work) of the IAG. This change was recommended by DOE in the OU 9 Phase I RFI/RI Work Plan approved by CDH and EPA in April 1992. Also, IHSS 212, RCRA Unit 63, Building 374 Drum Storage Area, was removed from the OU 15 RFI/RI process because it is currently active as a Drum Storage Area and has been included in the Rocky Flats RCRA Part B Transuranic Mixed Waste permit application. The remaining six IHSSs currently have interim status under RCRA.

Closure Plans for the IHSSs were submitted to CDH during 1988 and 1989. The IHSSs were also included within the IAG. During scoping meetings in April 1992 for the Phase I RFI/RI Work Plan, EPA, CDH, and DOE agreed to combine the Closure Plan and RFI/RI processes. In effect, the Clean Closure Performance Standard (5 CCR 1007-3 Part 265.111) will serve as the Applicable or Relevant and Appropriate Requirements for the OU 15 RFI/RI inside buildings.

Drums containing solids and liquids were stored at the OU 15 IHSSs. Types of waste included oils, coolants, solvents containing chlorinated hydrocarbons (RCRA F001 and F002 wastes), and waste paints and metals contaminated with solvents. Hazardous constituents include chlorinated solvents, beryllium, and uranium. No known spills or releases occurred. The current focus is characterization of contamination associated with the OU 15 IHSSs inside buildings, and, if applicable, decontamination of the concrete floors and other facilities at the indoor RCRA units.

Scope of Work Changes This Period

Stage III field work (outside building sampling) was deleted and replaced with inside building verification sampling with approval of the regulatory agencies. There will be no cost or schedule impact to this change in scope.

Technical Approach Changes This Period

None

IAG Milestone Accomplishments

Submit Draft Phase I RFI/RI Work Plan	01 Jun 92
Submit Final Phase I RFI/RI Work Plan	26 Oct 92

**Future IAG Milestones
Through FY95**

<u>Milestone Name</u>	<u>IAG Date Scheduled</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Submit Draft Phase I RFI/RI Report	01 Aug 94		01 Aug 94
Submit Final Phase I RFI/RI Report	04 Jan 95		04 Jan 95

**May Work Activity
Status**

Verification sampling inside buildings was initiated along with the preparation of the Draft Phase I RFI/RI Report.

Technical Memoranda**TM #1****TM Title**

Field Sampling Plan

TM Status

When preparation is concluded or is estimated to be concluded:

Projected date of submittal to EPA/CDH: 28 Feb 94

Actual date of submittal: 28 Feb 94

Date comments were received: Preliminary

17 Mar 94 (formal 07 Apr 94)

TM #2**TM Title**

Human Health and Risk Assessment

TM Status

When preparation is concluded or is estimated to be concluded:

Projected date of final submittal to EPA/CDH: To be determined - may not be necessary unless Stage III field work is performed.

Actual date of draft submittal: 28 Feb 94

Date comments were received: Preliminary

17 Mar 94 (formal 07 Apr 94*)

- Excluded formal comments from the EPA.

Planned Work for June

- Complete verification sampling within buildings.
- Address EPA comments on TM #1.
- Continue Draft RFI/ RI Report preparation.

Problems

None

Open Items

None

2.16 OU 16 - LOW-PRIORITY SITES

This assessment activity consists of preparing a No Action Justification Document for the following five IHSSs: Solvent Spill, Antifreeze Discharge, Steam Condensate Leaks (400 and 700 Areas), and Nickel Carbonyl Disposal. The No Action Justification Document was approved by the regulatory agencies, and the Record of Decision process was initiated to close OU 16 as an OU at Rocky Flats.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishments	Submit Draft No Action Justification Document	04 Mar 92
	Submit Final No Action Justification Document	30 July 92
	Submit Revised Final No Action Justification Document	16 Oct 92
	Submit Draft Record of Decision	29 Apr 94

**Future IAG Milestones
Through FY95** None

**May Work Activity
Status** The Draft Record of Decision was delivered to the regulatory agencies on April 29, 1994.

Technical Memoranda None

Planned Work for June

- Response to the regulatory agencies' comments on the Draft Record of Decision will be compiled providing that the regulatory agencies provide comments on schedule.

Problems Regulatory agencies' comments on the Draft Record of Decision are scheduled to be submitted by June 10, 1994. If these comments are delayed, completion of the Final Record of Decision by August 1, 1994 (internal milestone) may not be met.

Open Items None

2.17 SITEWIDE ACTIVITIES

Sitewide activities include several tasks that encompass a wide variety of plans, procedures, reports, studies, and activities required by the IAG and that apply to Rocky Flats ER activities in general. Activities include, but are not limited to Health Safety Plan, Sampling and Analysis Plan, Treatability Study deliverables, Background Study Plan, Groundwater Geochemistry, Risk Assessment, IA IM/IRA, hydrological characterization, Background Soils Study Plan, Decontamination Facilities, ER Waste Handling Facilities, groundwater monitoring, decontamination and decommissioning, and Program Management Support activities.

**Scope of Work Changes
This Period** None

**Technical Approach
Changes This Period** None

IAG Milestone Accomplishments	Submit Draft Background Study Report (Water)	15 Dec 89
	Submit Draft Background Study Report (Soils)	15 Dec 89
	Submit Draft Community Survey Plan	23 Jan 90
	Submit Final Community Survey Plan	22 Mar 90
	Submit Draft Health and Safety Plan	15 Aug 90
	Submit Draft Quality Assurance Project Plan	29 Aug 90
	Submit Draft Standard Operating Procedures	29 Aug 90
	Submit Draft Plan for Prevention of Contaminant Dispersion	19 Sep 90
	Submit Draft Treatability Study Plan	21 Sep 90
	Submit Draft Community Relations Plan	01 Nov 90
	Submit Final Health and Safety Plan	12 Nov 90
	Submit Revised Background Study Report	21 Dec 90
	Submit Final Community Relations Plan	22 Jan 91
	Submit Final Quality Assurance Project Plan	01 Mar 91
	Submit Final Standard Operating Procedures	01 Mar 91
	Submit Draft Radionuclides Discharge Limits Plan	05 Apr 91
	Submit Community Relations Plan Responsiveness Summary	21 Jun 91
	Submit Final Treatability Study Plan	03 Jun 91
	Submit Final Plan for Prevention of Dispersion Contaminant	22 Jul 91

Submit Final Plan Discharge Limits Radionuclides	16 Sep 91
Submit Final Plan for Prevention of Contaminant Dispersion and Responsiveness Summary	25 Nov 91
Submit Draft Historical Release Report	08 Jan 92
Submit Responsiveness Summary for Radionuclides Discharge Limits Plan	31 Jan 92
Submit Final Historical Release Report	03 Jun 92
Submit Annual Treatability Study Report	08 Mar 93
Submit Sitewide Annual Treatability Study	14 Mar 94
Draft IA IM/IRA Decision Document	23 Mar 94

Future Milestones Through FY95

<u>Milestone Name</u>	<u>IAG Date Schedule</u>	<u>Extension Status</u>	<u>Planned Accomplishment Date</u>
Sitewide Annual Treatability Study	14 Mar 95		14 Mar 95
Draft IA IM/IRA Responsiveness Summary	02 Aug 94		02 Aug 94
Draft Final IA IM/IRA Responsiveness Summary	23 Aug 94		23 Aug 94
Final IA IM/IRA Decision Document	23 Aug 94		

May Work Activity Status

Sitewide Activities

Sitewide Treatability Studies

Magnetic Separation Treatability - Negative schedule impacts are anticipated from the shutdown of operations at the Los Alamos National Laboratory TA-55 facility. Operations were shut down April 15, 1994, because of concerns regarding compliance with Operational Safety Requirements for the fire suppression system. Operations will resume June 6, 1994.

Soils Washing Treatability Study - The Removal of Actinides from the Soil Treatability Study Work Plan document is still in draft form. The subcontractor is completing the section detailing the experimental plan, as well as developing a processing flowsheet to verify that adequate soil aliquots will be used in the course of the experimental work. The Work Plan is being amended to follow the available guidance for Work Plan development. The Final Treatability Study Work Plan requires review before approval of the Operational Safety Analysis. Modifications to the Waste Stream and Residue Identification and Characterization Document are also in review.

Ion Exchange Process Treatability Study - Base metal analyses have been received under the Data Evaluation Program and were reviewed, and the analyses revealed that all of the base metals tested could be removed using a 0.45 μ m filter with the exception of selenium. For that reason, ion exchange test work will center on the treatment of uranium and selenium in groundwaters. Three additional resins will be added to the test work, as a result of recommendations made by the subcontractor. These resins are said to have the ability to treat selenium containing waters.

Potassium Ferrate Process (Transuranic/Clear) - The first draft of the Potassium Ferrate Precipitation Work Plan has been circulated for review. Comments have been received from all internal EG&G groups, as well as CDH, EPA, and DOE. Incorporation of the comments was completed by the end of May 1994. Two potential contaminated groundwater sources have been identified for the test work (containing uranium and selenium) with sample collection beginning by May 26, 1994.

Other Sitewide Operations

Groundwater Flow and Contaminant Transport - The construction of the weathered bedrock zone map and grids has been initiated. Data files for numerical and qualitative data for the weathered bedrock thickness and base have been made and are being used to construct maps. These maps will be adjusted according to geologists' interpretation of geologic history and the deposition environment of the Arapaho/Laramie formations.

Groundwater Characterization - An assessment of the Groundwater Monitoring Program at the Present Sanitary Landfill relative to compliance with the new Colorado Code of Regulations, 6 CCR 1007-2, was completed for Regulated Waste Programs. The program assessment included a review of groundwater monitoring activities at the Landfill, a summary of Rocky Flats Landfill Operations, the regulatory sequence preceding 6 CCR 1007-2 (dated April 1994), a summary of Section 6 CCR 1007-2, and a review of the groundwater monitoring compliance with the new regulations.

Hydrogeologic Characterization Report - Historical Rocky Flats reports dating back to 1952 related to hydrogeology have been compiled and are being evaluated for technical content and possible inclusion into the FY94 hydrogeologic characterization report.

Well hydrographs of active wells are being updated to include recent water-level monitoring data. Additional new hydrographs are being generated for the remaining non-active wells. Work on preparation of sitewide potentiometric maps has also begun.

Aquifer Test Data Validation - Validation of historical aquifer test data is approximately half complete with a preliminary assessment covering about 400 individual test values out of an estimated 750 total. The subcontractor is projecting that this activity will be completed by June 30, 1994.

Geologic Data Analysis - Stratigraphic correlation work using cores and geophysical logs continues. The subsurface stratigraphic correlation network has been used as a tool to identify faulting under Rocky Flats. To augment correlation efforts, additional palynology data are being collected (an initial palynology study was conducted in 1993). Samples for palynologic analyses were collected on May 23, 1994.

Soil Monitoring and Assessment - The contract for the modification to the OU 2 Surficial Soil Statement of Work covering the Soil Monitoring and Assessment's summer field activities was signed on May 20, 1994. Field work consisting of installing automated data-collecting devices will begin immediately.

Field Sampling Plan - Issues are being resolved that were raised by the regulatory agencies regarding the OU 11 Field Sampling Plan TM, *Perched Water Issues*. There were several issues raised: (1) the justification for the existence of perched water was not strong enough; (2) lithologic data as presented in the original OU 1 Work Plan were not used; and (3) the geophysical data were not evaluated for their usefulness. The regulatory agencies also recommended four more sample locations for surface soil sampling purposes. A proactive response is being taken to address these issues. Extra sampling is being performed.

Decontamination and Decommissioning - The Decontamination and Decommissioning Project Management Guidance Document and the Decontamination and Decommissioning Project Guidance document are being consolidated into a single Decontamination and Decommissioning Guidance document.

The possibility of accelerating engineering activities on all of the pilot projects is being explored. Currently, there is an accelerated design process called the General Engineering Support for Low-Risk Projects. This process is already being utilized for implemented pilot projects.

Community Relations - Community Relations met with the regulatory agencies on May 17, 1994, to discuss the June 22, 1994, ER quarterly meeting. CDH will be hosting the meeting. A draft agenda was developed and sent to CDH and EPA on May 18, 1994. Topics include the following: FY94 budget, the IA IM/IRA, and an update on Rocky Flats Cleanup Agreement negotiations.

A video on the IA was filmed on May 26, 1994, for use at the June 22, 1994, quarterly meeting.

Community Relations assisted the Public Participation Focus Group and the Citizens Advisory Board in developing and implementing the Rocky Flats Cleanup Agreement Public Participation Plan. Activities included: updating the plan, developing logistics for public scoping meeting scheduled for June 1, 1994, and developing the negotiating team's issues list for the public.

Industrial Area Interim Measure/Interim Remedial Action Plan - Comment responses were completed and received by DOE from the subcontractor. Text changes will follow approval of the comment resolutions.

A meeting was held regarding the installation of the Sewage Treatment Plant Federal Facility Compliance Agreement upgrade tanks. The milestone for the installation of these tanks has been incorporated into the IA IM/IRA. This is designed to allow construction of these facilities to proceed without being tied up in the National Pollutant Discharge Elimination System permit dispute. Currently, the funding for the project is identified as capital upgrades. Work on this issue is continuing and is also being evaluated for its impact on the IM/IRA schedule.

A third briefing was given to DOE management regarding the commitments identified in the IM/IRA Decision Document. This briefing was followed by a meeting with DOE to discuss the immediate action plan for the IA IM/IRA. A flow chart of current activity has been developed, and a schedule is being outlined around the actions. It was decided that the IM/IRA commitments and their associated costs would be summarized in a

letter. This will provide the necessary information without requiring an entire document review.

Planned Work for June

- Complete contaminant modeling for OU 3.
- Complete the approval process and submit for bid the General Radiochemistry Analytical Services Protocol.
- Develop an IM/IRA implementation plan for public approval.
- Complete the mineralogic and petrographic characterization studies that will feed the Geologic Characterization Report.

Problems

None

Open Items

None

SECTION 3.0 ROUTINE ENVIRONMENTAL MONITORING

The following generalized sampling schedule for Routine Environmental Monitoring is provided as requested in Section 210 of the IAG. Detailed quarterly monitoring schedules are prepared in advance and are available to EPA and CDH upon request from the Environmental Management Department and EG&G Rocky Flats, Inc. The schedules are lengthy; therefore, they are not reproduced here. An EPA- or state-authorized representative may make arrangements to observe field work and to obtain split or duplicate samples.

3.1 SURFACE WATER AND SEDIMENTS

Each of the Surface Water Stations (approximately 20 stations) is sampled quarterly.

Each of the Sediment Stations (approximately 10 stations) is sampled quarterly.

Each surface water and sediment sample is analyzed for the following parameters:

CLP TCL VOA	Radionuclides
Metals CLP TAL and Non-TAL	Temperature
Field Parameters	TDS/TSS
Specific Conductivity	pH
Dissolved Oxygen	Nutrients
Major Anions	

Additionally, sediment samples are analyzed for CLP-Semi VOAs and CLP-Pesticides/PCBs Herbicides-619

3.2 SOILS

Each of the Soil Stations (located at 1- and 2-mile radii from the plant center) is sampled annually.

Each soil sample is analyzed for plutonium and americium.

3.3 GROUNDWATER

A total of 380 groundwater stations is sampled quarterly; this includes RCRA, CERCLA, plant protection, and boundary wells. All wells are monitored quarterly for water levels and approximately one-third of the wells are monitored monthly for water levels. Each groundwater sample are analyzed for the following parameters:

Radiochemical Parameters

Gross Alpha
Gross Beta
Plutonium
Americium
Strontium
Tritium
Uranium
Cesium

Inorganic Parameters

Nitrate/Nitrite
Total Phosphorous
Ortho-Phosphate
Ammonia
TDS
Chlorine
Fluorine
Sulfate
Carbonate
Inorganic Parameter
Bicarbonate
TSS
Dissolved CLP and additional metals
Cyanide
CLP Volatile Organic Constituents

Field Parameters

Specific Conductivity
Temperature
Turbidity
pH

SECTION 4. SUBCONTRACTOR IDENTIFICATION

Contractors and subcontractors being used on the Rocky Flats ER Program and the work they are performing are identified on the following list as required by paragraph 13 of the IAG.

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
1	Assessment	Dames & Moore		CMS/FS Report	Jan 92
1	Assessment	Dames & Moore		Public Health Evaluation	Apr 93
1	Assessment	Roy F. Weston		Revise RI Report, respond to agency comments	Feb 93
1	Assessment	S.M. Stoller		Environmental Evaluation	Apr 93
1	Remediation	Resource Tech.		B-891 Treatment System Operations Group, Inc. (RTG)	
2	Assessment	Woodward-Clyde		OU 2 RFI/RI Work Plan (alluvial and bedrock) and RI field work (drilling, well completion/development)	Sep 90
2	Assessment	Woodward-Clyde	Layne	OU 2 RFI/RI Work Plan (bedrock), surficial soils	Mar 93
2	Remediation	RTG		Installation and operation of the water treatment system for South Walnut Creek Phase of OU 2 IRA	Jan 91
2	Soil Vapor Extraction	Woodward-Clyde		Operation of Soil Vapor Extraction	1993
3	Assessment	IT Corporation	CH2M Hill	OU 3 Field Work and RI Report	Apr 92
3	Assessment	MRI		Wind Tunnel/Soil Resuspension Study	Aug 92
4	Remediation	HNUS Services	Halliburton Spec	Demobilize	Sep 91
4	Assessment	Parsons/Eng Science	Rust I&E	Implement the Phase I RFI/RI Work Plan, includes drilling, sampling radiation surveys, etc.	Aug 92
4	Remediation	Parsons/ Eng Science		Development of IM/IRA Decision Document conceptual design	
4	Remediation	ERM-Rocky Mountain	Geraghty & Miller	Post-closure monitoring plan	Nov 93

DOE-RFFO

<u>OU</u>	<u>Project</u>	<u>Subcontractor</u>	<u>Sub-Subcontractor</u>	<u>Work Description</u>	<u>Start Date</u>
5	Assessment	ASI Blackhawk Geo Walsh & Assoc. Layne Envir. Service S.M. Stoller Adv. Terra Testing	Dames & Moore Utility Mgmt. Service	Implementation of OU 5 Work Plan (excluding EE)	Jun 92
5	Assessment	S.M. Stoller		Implementation of EE section of OU 5 Work Plan	Sep 92
6	Assessment	Woodward-Clyde	Lane, Ogden, Geo Envir	OU 6 RFI/RI Work Plan and Quality Assurance Addendum	Aug 92
6	Assessment	S.M. Stoller		Implementation of EE section of OU 6 Work Plan	Sep 92
7	Assessment	S.M. Stoller	Walsh & Assoc.	OU 7 revised Work Plan develop- ment and implementation. IM/IRA DD development	Nov 92
8	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs	Aug 93
9	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs	Aug 93
10	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs	Aug 93
11	Assessment	S. M. Stoller		Implement the RFI field work and report writing	Jan 94
12	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs	Aug 93
13	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs	Aug 93
14	Assessment	Jacobs Eng.	Walsh & Assoc.	Implement the Phase I RFI/RI Work Plan for non-intrusive field work for the IA OUs	Aug 93
15	Assessment	ERM-Rocky Mtn.	G.S. Miller, Inc.	Implementation of the RFI/RI Work Plan	Mar 93
SW	HRR	IT Corporation	Doty & Assoc.	Prepare HRR	Feb 91
SW	Adm. Record Record	QuantaLex		Maintain IAG Administrative	Oct 90

Subcontractor Identification

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SW	Geo. Char.	Jacobs Eng.		Well Abandonment and Replacement	Mar 93
SW	Geo. Char. University	Colorado State		Support masters thesis of Structural Geology, of Front Range Area Near Rocky Flats	Nov 91
SW	Geo. Char.	S.M. Stoller		Prepare 1992 Annual RCRA Report and Addendum	Jan 93
SW	Geo. Char.	Colorado School of Mines		Masters-level training program in ES and Engineering	Aug 92
F	Geo. Char.	Woodward-Clyde		Support for the SSWMS	Feb 93
SW	Geo. Char.	Colorado State University		Sequential Extraction	April 92
SW	Geo. Char.	University of Colorado		Soil Monitoring Vadose Zone	Jun 92
SW	Geo. Char.	S.M. Stoller		Spatial Analysis/Computer Support	Mar 93
SW	Geo. Char.	Woodward Clyde	SAIC/Wright Water		Jan 93
SW	Monitoring	IT Corporation		Analytical Services for groundwater, surface water, and sediment	Jul 90
SW	QA	SAIC		Develop and implement QA program and field operations oversight	Dec 90
PM	Support	S.M. Stoller		Program Management Support	Oct 92
PM	QA Support	SAIC		Provide QA/QC support to ER Program	Nov 92

ACRONYMS

CDH	Colorado Department of Health
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CMS	Corrective Measures Study
DOE	U. S. Department of Energy
EPA	U. S. Environmental Protection Agency
ER	Environmental Restoration
FS	Feasibility Study
FY	Fiscal Year
IA	Industrial Area
IAG	Interagency Agreement
IHSS	Individual Hazardous Substance Site
IM	Interim Measure
IRA	Interim Remedial Action
IRAP	Interim Remedial Action Plan
OU	Operable unit
RCRA	Resource Conservation and Recovery Act
RFFO	Rocky Flats Field Office
RFI	RCRA Facilities Investigation
RI	Remedial Investigation
TM	Technical memorandum